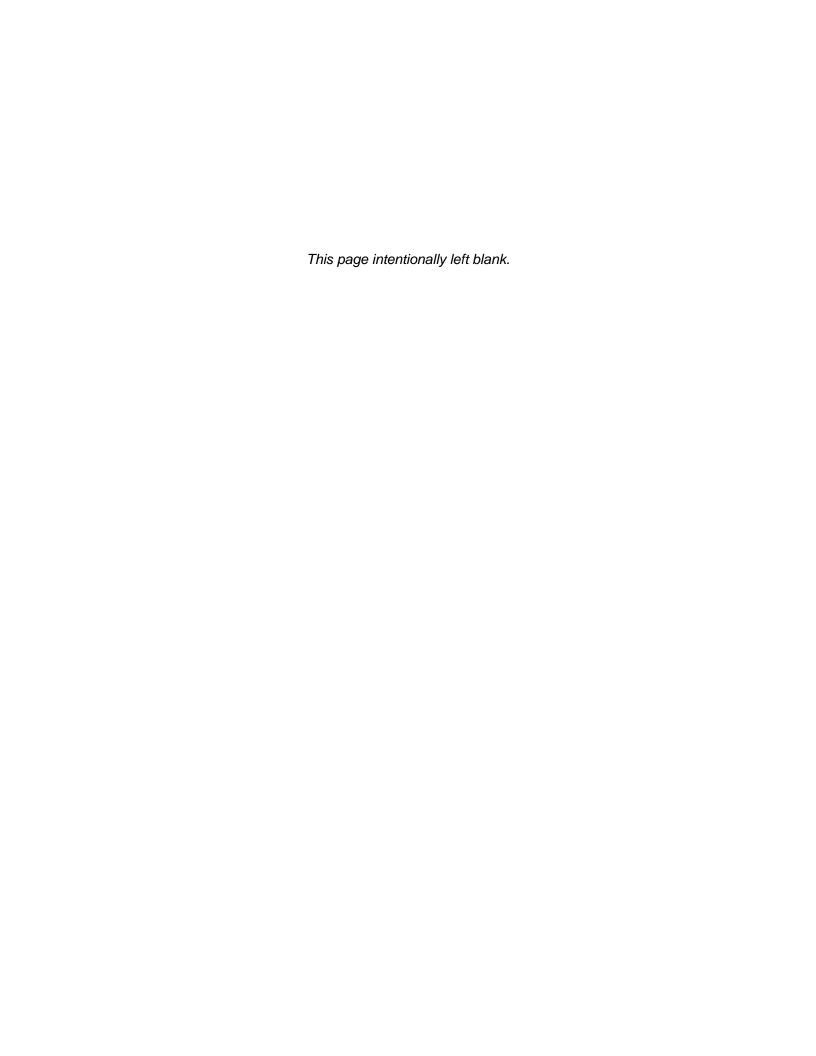


**Jurisdictional Determination Report** 

# Palmer Exploration Project Constantine North, Inc.

Haines, Alaska

January 2018



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Appendix A: Wetland Determination Forms and Photographs

Appendix B: Observation Points – Photographs

## **Acronyms**

ATV All-Terrain Vehicle

CFR Code of Federal Regulations

Constantine Constantine North, Inc.

FAC Facultative

FACU Facultative Upland FACW Facultative Wetland

GIS Geographic Information System
GPS Global Positioning System

HDR HDR, Inc.

HGM Hydrogeomorphic

JDR Jurisdictional Determination Report NCRS Natural Resources Conservation Service

NWI National Wetlands Inventory

OBL Obligate Wetland

RPW Relative Permanent Water SPN Special Public Notice

TNW Traditional Navigable Water
USACE U.S. Army Corps of Engineers
USFWS U.S. Fish and Wildlife Service



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## 1.0 Introduction and Purpose

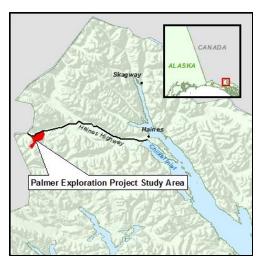
Constantine North, Inc. (Constantine), has contracted HDR, Inc. (HDR), to prepare a Jurisdictional Determination Report (JDR) in support of the Palmer Exploration Project (project) located north of Haines, Alaska. This JDR delineates and describes the wetlands and other waters of the U.S. within the study area.

The wetlands and other waters of the U.S. identified in this report are potentially subject to jurisdiction of the U.S. Army Corps of Engineers (USACE) under the authority of Section 404 of the Clean Water Act of 1972 (as amended) or Section 10 of the Rivers and Harbors Act of 1899. Information presented herein is intended to comply with the USACE guidance for jurisdictional determination reports, Special Public Notice (SPN) 2010-45 (USACE 2010).

HDR has conducted three prior wetland mapping tasks in support of the project. In 2013, HDR prepared a field-verified JDR for a 233-acre area along Glacier Creek (HDR 2013), and in 2015 and 2017, HDR prepared office-based mapping totaling approximately 12,800 acres (HDR 2015, 2017; Figure 1). The study area for this field-verified JDR surrounds the previous JDR effort and includes portions of the other office-based mapping efforts.

## 1.1 Study Area Description

The 2017 study area comprises approximately 4,580 acres northwest of Haines, along Glacier Creek from its headwaters to its confluence with the Klehini River (Inset 1), encompassing much of the Glacier Creek watershed. Access is via a maintained dirt road that enters from the east and then turns roughly southwest to parallel Glacier Creek and bisect the study area. Unmaintained dirt roads and all-terrain vehicle (ATV) trails run through the area as well. The study area extends approximately 5.5 miles from the southwest end to the northeast border, and approximately 1.8 miles north to south at its widest point. Location information is included in Table 1.



Inset 1: Location and Vicinity of Study Area

Table 1. Location Information for the Study Area							
Latitude/Longitude (NAD83)	59°24'30.01"/-136°19'32.06"						
	Sections, 23, 24, 25, 26, 34, 35, and 36; Township 28 South, Range 53 East, Copper River Meridian						
Public Land Survey System	Sections 19, 20, 21, 28, 29, 30, 31, and 32; Township 28 South, Range 54 East, Copper River Meridian						
	Sections 5 and 6; Township 29 South, Range 54 East, Copper River Meridian						
U.S. Geological Survey Quadrangle	Skagway B-4						



Table 1. Location Inf	formation for the Study Area
Watersheds	Little Boulder Creek-Klehini River and Glacier Creek
12-digit Hydrologic Unit Codes	190103031005 and 190103031002
Ecoregion <sup>a</sup>	Pacific Coastal Mountains
Major Land Resource Area <sup>b</sup>	Southern Alaska Coastal Mountains

a Gallant et al. 1995

## 1.2 Regulatory Definitions

Wetlands, other waters of the U.S., and uplands (non-wetlands), as referenced in this report, are defined as follows:

<u>Wetlands:</u> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] Part 328.3(b)). Wetlands are a subset of "waters of the U.S." Note that according to the 1987 Corps of Engineers Wetlands Delineation Manual (Wetlands Delineation Manual) and in the 2007 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Regional Supplement; USACE 1987, 2007), wetlands must possess the following three characteristics: (1) a vegetation community dominated by plant species that are typically adapted for life in saturated soils, (2) inundation or saturation of the soil during the growing season, and (3) soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions.

<u>Waters of the U.S.</u>: In addition to wetlands, waters of the U.S. include other waterbodies regulated by USACE, including navigable waters, lakes, ponds, and streams.

Uplands: Non-water and non-wetland areas are called uplands.

## 2.0 Methods

#### 2.1 Field Work

HDR wetland scientists Doug Jewell and Erin Cunningham conducted an on-site investigation of wetlands and waterbodies within the study area from July 19 to 22, 2017. Soil conditions, hydrology, and vegetation communities were studied using methods described in the 1987 *Wetlands Delineation Manual* and 2007 *Regional Supplement* (USACE 1987, 2007).

Standard USACE Wetland Determination Forms were completed at 19 sites. Photographs and observational data were collected at 43 additional Observation Points to document sites that exhibited characteristics similar to those areas where a data form had already been completed, or to document the presence of a waterbody or stream. Locations of both Wetland Determination Form and Observation Point sites were logged into a handheld global positioning system (GPS) unit and are shown on Figures 4 through 11.

<sup>&</sup>lt;sup>b</sup> Natural Resources Conservation Service (NRCS) 2004

## 2.2 Wetland Mapping and Classification

Upon returning from the field, scientists analyzed field-collected data and reviewed the following datasets in a Geographic Information System (GIS) to help delineate and classify wetlands and waterbodies in the study area:

- Digital color ortho-rectified aerial photography taken in July 2013, at sub-meter horizontal accuracy ground pixel resolution provided by Constantine (Constantine 2013).
- LiDAR-derived topographic contours and hillshade data, at 2-meter intervals, provided by Constantine (Constantine 2013).
- Soil Survey for the Haines Area, Alaska (NRCS 2005)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) digital wetland mapping (USFWS 2017).

GPS locations of field-visited sites were overlaid on the aerial photography in GIS to identify and classify wetlands and other waters present within the study area. Aerial photography vegetation signatures from these field-visited sites were then extrapolated to similar locations throughout the study area, and wetland/upland boundaries were digitized into GIS. Delineating wetlands from aerial photography includes the following methods:

- *Vegetation clues:* Scientists examine aerial photographs for saturation-adapted vegetation communities; indicative canopy structure and height; and presence of hydrophytic plant species.
- Evidence of soil saturation: A site's proximity to streams, open water habitat, and marshes can be indicative of shallow subsurface water. Scientists, therefore, look for visible evidence of wetland hydrology, including surface water and darker areas of photos that indicate surface saturation.
- Topography: Evidence of topographic high points and sloped surfaces that would allow soils to
  drain supports the classification of areas as upland. Topographic depressions, toes of slopes, and
  flat topography serve as indicators of potentially poor soil drainage.

Wetlands and waterbodies were classified based on a review of field notes, data forms, and site photographs. Polygons identifying homogeneous wetland and waterbody areas in the GIS-based mapping were attributed with NWI mapping codes based on the USFWS's *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin et al. 1979).

## 3.0 Summary of Wetland Indicators

The vegetation, hydrology, and soil conditions described in this report are based on the field investigation conducted by HDR between July 19 and 22, 2017. Wetlands were identified in the field where scientists observed indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. Of the 19 locations where a data form was completed, seven were determined to be wetland. Of the 12 remaining upland sites, one met the criteria for both hydric soil and hydrophytic vegetation but did not meet the criteria for wetland hydrology, four sites met only the criteria for hydrophytic vegetation, and the other seven upland sites did not meet any of the three criteria required to be a wetland. Table 2 summarizes the Wetland Determination Form sites. The completed Wetland Determination Forms and photographs taken at each site are included in Appendix A.

In addition to the 19 locations where Wetland Determination Forms were completed, 43 Observation Points were documented. Observational data was collected at these points to describe the wetland or



upland status of the community sampled, or to document the presence of a waterbody or stream feature. Photographs taken at each Observation Point are included in Appendix B.

**Table 2. Summary of Wetland Determination Form Sites** 

Plot Number	Latitude	Longitude	NWI Code <sup>a</sup>	HGM Class <sup>b</sup>	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology
085	59.42424	-136.29431	U	N/A	-	-	-
100	59.42311	-136.28477	υ	N/A	-	-	-
113	59.41869	-136.28781	PSS1/EM1B	Slope	Х	Χ	Х
114	59.41885	-136.28784	PSS1/EM1B	Slope	Х	Χ	Х
116	59.41903	-136.28941	U	N/A	Х	-	-
117	59.41905	-136.29016	U	N/A	Х	-	-
125	59.40562	-136.28241	PEM1F	Slope	Х	Х	Х
127	59.40627	-136.28276	PSS1/EM1C	Slope	Х	Χ	Х
131	59.40671	-136.28311	U	N/A	Х	-	-
132	59.40657	-136.28299	PSS1/EM1B	Slope	Х	Х	Х
134	59.40572	-136.28073	PFO4/SS1C	Slope	Х	Х	Х
135	59.42373	-136.24394	U	N/A	Х	Х	-
147	59.42783	-136.28159	U	N/A	-	-	-
148	59.42948	-136.27487	U	N/A	-	-	-
152	59.42566	-136.27033	U	N/A	-	-	-
154	59.42197	-136.24547	U	N/A	Х	-	-
156	59.42150	-136.24530	U	N/A	-	-	-
157	59.38641	-136.37317	U	N/A	-	-	-
181	59.42246	-136.23981	PFO4/SS1B	Riverine	Х	Х	Х

<sup>&</sup>lt;sup>a</sup> Source: Cowardin et al. 1979; see Table 7 for NWI code descriptions.

## 3.1 Vegetation

A list of the dominant vascular plant species observed in the study area during the field investigation and their indicator status is provided in Table 3 (Lichvar et al. 2016). Synonyms of plant species names that were recorded in the field on Wetland Determination Forms are also included in Table 3. The dominant plant species were identified by using the "50/20 Rule" from the *Regional Supplement* (USACE 2007).

In total, 12 of the 19 sites where Wetland Determination Forms were completed met the requirements for hydrophytic vegetation, through either the dominance test or the prevalence index. Hydrophytic

<sup>&</sup>lt;sup>b</sup> Source: Brinson 1993



vegetation was not always correlated with a wetland, as five sites with hydrophytic vegetation did not meet the remaining criteria to be classified as wetland.

Table 3. Dominant Plant Species and Alaska Regional Indicator Status										
Scientific Name (Synonym)	Common Name	Indicator Status <sup>a</sup>	Scientific Name (Synonym)	Common Name	Indicator Status <sup>a</sup>					
Alnus viridus (Alnus sinuata)	Sitka alder	FAC	Oplopanax horridus	devil's club	FACU					
Aruncus dioicus	goatsbeard	UPL	Picea sitchensis	Sitka spruce	FACU					
Athyrium cyclosorum (Athyrium felix-femina)	western lady fern	FAC	Populus tricocarpa	black cottonwood	FACU					
Anemone parviflora	smallflowered anemone	FACU	Pyrola asarifolia	liverleaf wintergreen	FACU					
Betula glandulosa	resin birch	FAC	Ribes lacustre	prickly currant	FAC					
Bromus sitchensis	Alaska brome	NL	Rubus chamaemorus	cloudberry	FACW					
Calamagrostis canadensis	bluejoint reedgrass	FAC	Rubus spectabilis	salmonberry	FACU					
Carex aquatilis	water sedge	OBL	Salix barclayi	Barclay's willow	FAC					
Carex buxbaumii	Buxbaum's sedge	FACW	Salix glauca	grayleaf willow	FAC					
Chamerion angustifolium (Epilobium angstifolium)	narrow-leaf fireweed	FACU	Salix pulchra	tealeaf willow	FACW					
Circaea alpine	enchanter's nightshade	FACW	Salix sitchensis	Sitka willow	FAC					
Cornus canadensis	bunchberry dogwood	FACU	Sanguisorba canadensis	Canadian burnet	FACW					
Cornus sericea (Cornus stolonifera)	redosier dogwood	FAC	Senecio triangularis	arrowleaf ragwort	FACW					
Dryas drummondii	yellow dryas	FACU	Sheperdia canadensis	soapberry	FACU					
Elymus glaucus	western ryegrass	FACU	Trichophorum cespitosum	tufted bulrush	OBL					
Equisetum arvense	field horsetail	FAC	Tsuga heterophylla	western hemlock	FAC					
Equisetum fluviatile	water horsetail	OBL	Tsuga mertensiana	mountain hemlock	FAC					
Equisetum pratense	meadow horsetail	FACW	Urtica dioica	stinging nettle	FACU					
Equisetum variegatum	variegated scouringrush	FACW	Vaccinium alaskaense	Alaska blueberry	FAC					
Erigeron peregrenus	subalpine fleabane	FACW	Vaccinium uliginosum	bog blueberry	FAC					
Gymnocarpium dryopteris	western oakfern	FACU	Valeriana sitchensis	Sitka valerian	FAC					
Heracleum lanatum	cowparsnip	FACU	Viburnum edule	squashberry	FACU					
Leptarrhena pyrolifolia	fireleaf leptarrhena	FACW	Viola langsdorffii	Aleutian violet	FACW					
Menziesia ferruginea	rusty menziesia	FACU								

<sup>&</sup>lt;sup>a</sup> Wetland Indicator Status (Lichvar et al. 2016). **FAC**: Facultative - species equally likely to occur in wetlands and non-wetlands; **FACU**: Facultative Upland - species usually occurs in non-wetlands; **FACW** - Facultative Wetland - species usually occurs in wetlands; **OBL**: Obligate Wetland - species almost always occurs under natural conditions in wetlands; **NL**: Not Listed – species not listed in the State of Alaska 2016 Wetland Plant List.



#### 3.2 Soils

The *Soil Survey of the Haines Area, Alaska* soil mapping (NRCS 2005) covers approximately 87 percent of the study area, as shown in Figure 1. Of the soil map units identified in the study area, three are shown to include hydric components and are either poorly drained or somewhat poorly drained, as shown in Table 4.

Table 4. Haines	<b>Area</b>	Soil Series	Units	Located in	Study Area	
I abic 4. Hallics	AI Ca	JUII JEHES	Ullita	LUCAICU III	Juuv Alea	

Soil Map Unit ID#	Soil Name/Drainage Class	Percent Hydric Composition	Hydric Composition Landform
109	Histic Cryaquepts / Poorly drained	100	Depressions
110	Hollow and Skagway soils / Somewhat poorly drained	100	Flood plains
115, 116, 117	Kupreanof-Foad complex / Well drained	0	Mountains
121	Lutak-Kupreanof association / Well drained	0	Terraces / Mountains
124	Riverwash	N/A	Floodplains
130	Rock outcrop-Tolstoi-Foad complex / Well drained	0	Mountains
134, 135, 140	Tolstoi-Foad complex / Well drained	0	Mountains
142	Tsirku-Hollow-Funter complex / Somewhat poorly drained (Tsirku, Hollow) / Very poorly drained (Funter)	90	Floodplains (Tsirku, Hollow), Depressions on terraces and floodplains (Funter)
147	Water, fresh	N/A	Waterbodies

Site-specific soil characteristics were documented at each of the 19 Wetland Determination Form sites and are summarized in Table 5. Eight of the 19 Wetland Determination Form sites had hydric soils. Three hydric soil indicators were detected during the field investigation: histosols (six sites), hydrogen sulfide odor within the upper 12 inches of the soil surface (four sites), and Alaska Redox (two sites). One of the sites (Site 135) exhibited the Alaska Redox indicator, but was determined upland due to lack of wetland hydrology. The 11 Wetland Determination Form sites that lacked hydric soil indicators were classified as upland. These sites generally had shallow (less than 6 inches) organic horizons, and were composed of well-drained sand or silt, often with gravels and/or cobbles.

Table 5. Hydric Soil Indicators at Data Collection Sites										
Site	Histosol	Hydrogen Sulfide	Alaska Redox	Hydric Soil Present?						
085	-	-	-	No						
100	-	-	-	No						
113	Х	Х	-	Yes						
114	Х	Х	-	Yes						
116	-	-	-	No						
117	-	-	-	No						
125	Х	Х	-	Yes						

	Table 5. Hydric	Soil Indicators	at Data Collection	Sites		
Site	Histosol	Hydrogen Sulfide	Alaska Redox	Hydric Soi Present?		
127	X	Х	- '			
131	-	-	-	No		
132	Х	-	-	Yes		
134	Х	-	-	Yes		
135	-	-	Х	Yes		
147	-	-	-	No		
148	-	-	-	No		
152	-	-	-	No		
154	-	-	-	No		
156	-	-	-	No		
157	-	-	-	No		
181	-	-	Х	Yes		
TOTAL	6	4	2	8		

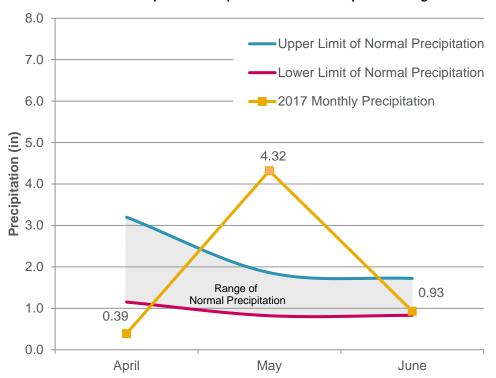
Specific information about the soil horizons and hydric soil indicators (e.g., depth of organic horizon) can be found on the data forms included in Appendix A. These indicators are further described in the 2007 *Regional Supplement* (USACE 2007).

## 3.3 Hydrology

Precipitation data for the 3 months prior to the July 19–22 field investigation was reviewed to determine the degree to which any recent weather (e.g., abnormal wet or dry conditions) may have influenced field hydrology. Climate data for the surrounding region was obtained from the Haines AP weather station at the Haines Airport, located approximately 30 miles southeast of the study area.

The monthly precipitation totals preceding the field visit were then compared to the normal ranges of monthly precipitation derived from 1971 to 2000 using the NRCS *Engineering Field Handbook* method (NRCS 1997, 2017). This method weights the data by both the amount of precipitation and the relative age of a rainfall event. The results of the comparison are shown in Inset 2. Although May precipitation totals were well above the normal range, the NRCS method calculates the antecedent precipitation prior to the field work as normal.





Inset 2: Antecedent Precipitation Compared to Normal Precipitation Range for Haines Airport

Seven of the 19 Wetland Determination Form sites showed indicators of wetland hydrology. All seven of those displayed primary indicators of a high water table and saturation within the upper 12 inches of the soil surface. The second-most common primary hydrology indicators were the presence of surface water and inundation visible on aerial imagery. The most common secondary indicator met was a positive FAC-neutral test in four of the seven sites. The primary and secondary indicators of hydrology met at each site are shown in Table 6. All sites with wetland hydrology were determined to be wetland.

Specific information about the wetland hydrology indicators (e.g., depth to saturation within the soil pit) can be found on the data forms included in Appendix A. These indicators are further described in the 2007 *Regional Supplement* (USACE 2007).

Table 6. Wetland Hydrology Indicators at Data Collection Sites												
			Prir	nary Ind	dicators	3		S	econdar	y Indicat	ors	
Site	Surface Water	High Water Table	Saturation	Algal Mat or Crust	Iron Deposits	Inundation on Aerial Imagery	Hydrogen Sulfide Odor	Drainage Patterns	Stunted\Stre ssed Plants	Geomorphic Position	FAC-Neutral Test	Wetland Hydrology Present?
085	-	-	-	-	-	-	-	-	-	-	-	No
100	-	-	-	-	-	-	-	-	-	-	-	No
113	Х	Х	Х	-	-	-	Х	Х	-	-	-	Yes
114	-	Х	Х	-	-	-	Х	-	-	-	-	Yes

	Table 6. Wetland Hydrology Indicators at Data Collection Sites											
	Primary Indicators								econdary			
Site	Surface Water	High Water Table	Saturation	Algal Mat or Crust	Iron Deposits	Inundation on Aerial Imagery	Hydrogen Sulfide Odor	Drainage Patterns	Stunted\Stre ssed Plants	Geomorphic Position	FAC-Neutral Test	Wetland Hydrology Present?
116	-	-	-	-	-	-	1	-	-	-	-	No
117	-	-	-	-	-	-	-	-	-	-	-	No
125	Х	Х	Х	Х	Х	Х	Х	Х	-	Х	Х	Yes
127	Х	Х	Х	-	-	-	Х	-	-	-	Х	Yes
131	-	-	-	-	-	-	-	-	-	-	-	No
132	-	Х	Х	-	-	-	-	-	-	-	-	Yes
134	Х	Х	Х	-	-	-	-	-	Х	Х	Х	Yes
135	-	-	-	-	-	-	-	-	-	-	-	No
147	-	-	-	-	-	-	-	-	-	-	-	No
148	-	-	-	-	-	-	-	-	-	-	-	No
152	-	-	-	-	-	-	-	-	-	-	-	No
154	-	-	-	-	-	-	-	-	-	-	Х	No
156	-	-	-	-	-	-	-	-	-	-	-	No
157	-	-	-	-	-	-	-	-	-	-	-	No
181	-	Х	Х	-	-	-	-	-	-	-	-	Yes
TOTAL	4	7	7	1	1	4		2	1	2	4	7

## 4.0 Wetland and Waterbody Classification

Wetlands were identified where wetland scientists observed indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. If any of these three requirements are not met under normal conditions, the site does not meet the USACE criteria for being classified as a wetland. Waterbodies were identified to their ordinary high water mark using procedures outlined in Regulatory Guidance Letter 05-05. Wetland/upland determinations were made at 19 sites where Wetland Determination Forms were completed and at 43 Observation Points.

#### 4.1 Forested Wetlands

Approximately 13.6 acres of needle-leaved evergreen forested wetlands (less than 1 percent) are found in the study area. Forested wetlands are found in beaver-flooded areas near the confluence of Glacier Creek with the Klehini River and near the eastern edge of the study area, as well as on the edges of the slope wetland complexes in the southern part of the study area.



Vegetation in forested wetlands is typically dominated by Sitka spruce and western and mountain hemlock. These communities also have at least a 30 percent composition of scrub-shrub vegetation in the understory. Dominant shrub species include deciduous species such as alder and willow, as well as spruce and hemlock saplings.

Forested wetlands in the study area are either saturated, seasonally flooded, or permanently flooded (due to beaver activity). Soils in the seasonally flooded forested wetlands on the edge of the wetland complex in the southern part of the study area (Site 134, Inset 3) had an organic surface layer at least 18 inches deep, meeting the definition of a histosol, while gleyed soils with Alaska Redox were present in the saturated forested wetland near the eastern border of the study area (Site 181).

## 4.2 Scrub-Shrub Wetlands

Broad-leaved deciduous scrub-shrub (PSS1) wetlands are the most common types of wetlands in the study area, occupying approximately 52.0 acres (approximately 1 percent). These wetlands are found along stream banks, in beaver-influenced flooded areas and in areas of slope discharge.

Vegetation is typically dominated by alder and willow species, or devil's club. Vegetation in the herbaceous stratum generally comprise at least 30 percent of the total vegetation cover. Dominant emergent species include western lady fern and bluejoint reedgrass (Inset 4).

Scrub-shrub wetlands mapped within the study area typically have either a saturated or seasonally flooded



Inset 3: Seasonally flooded needle-leaved forested/deciduous scrub-shrub wetland at Site 134 (PFO4/SS1C)



Inset 4: Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland at Site 113 (PSS1/EM1B)

hydrologic regime. Soils at each of the scrub-shrub determination form sites are composed of at least 16 inches of organic material (Histosol), with most sites also having a hydrogen sulfide present in the upper 12 inches of the soil surface.

## 4.3 Emergent Wetlands

Persistent emergent (PEM1) wetlands comprise 7.8 acres (less than 1 percent) of the study area. The majority of these wetlands are near the southern boundary of the study area, in two wetland complexes on a terraced, north-facing slope (Inset 5).

Dominant emergent vegetation species include tufted bulrush and Buxbaum's sedge, as well as scrub-shrub species such as resin birch and cloudberry. Trees are sparse in emergent wetlands in the study area.



Inset 5: Semi-permanently flooded persistent emergent wetland at Site 125 (PEM1F)

Approximately 90 percent of emergent wetlands mapped within the study area have a semipermanently flooded hydrologic regime. These areas have surface water to a depth of approximately 12 inches and are typically wetter than the immediately surrounding scrub-shrub and forested vegetation communities. Soils at the data form site located in a semipermanently flooded emergent wetland (Site 125) consisted of a Histosol and also had a hydrogen sulfide odor within the upper 12 inches of the soil surface.

#### 4.4 Waterbodies

Waterbodies account for approximately 4 percent or 185.9 acres of the study area. Waterbodies in the study area were classified as either streams or ponds.

#### 4.4.1 Streams

Both perennial and intermittent streams are found within the study area. The dominant drainage pattern in the study area is from the ridge on the south side of the area north and northeastward toward Glacier Creek and the Klehini River. The area north of the access road and east of Glacier Creek is a large alluvial fan composed mainly of well-drained coarse soils. Multiple intermittent and perennial streams (such as the one shown in Inset 6) originate as seeps in the steeper forested terrain in the north part of the study area and flow into this alluvial fan area, where soils are well-drained and the streams appear to go subsurface.

Beaver activity has influenced multiple streams in the study area, leading to flooding of surrounding areas. Approximately 9.6 acres of the study area's wetlands and waterbodies are affected by beaver activity. Inset 7 shows an aerial overview photo of beaver-caused flooding at the Glacier Creek confluence with the Klehini River.

#### 4.4.2 **Ponds**

There are eight permanently flooded ponds in the study area with unconsolidated bottoms. They total approximately 3.0 acres, less than 1 percent of the study area. Three of the ponds are excavated out of uplands, one of which is shown in Inset 8. No surface water inlets or outlets were found at any of the excavated ponds.



Inset 6: Permanently flooded upper perennial unconsolidated bottom stream at Site 171 (R3UBH)



Inset 7: Aerial photograph of beavercaused flooding near the confluence of Glacier Creek and the Klehini River



Inset 8: Permanently flooded unconsolidated bottom excavated pond at Site 081



## 4.5 Uplands

Uplands account for approximately 94 percent or 4,320.3 acres of the study area. Upland vegetation communities are forested, scrub-shrub, and (less often) emergent dominated. Forested communities were mostly dominated by Sitka spruce and western hemlock, while upland scrub-shrub plant communities were dominated by willow and alder species, as well as devil's club, Canadian bunchberry, and other facultative and facultative upland species. Scrub-shrub vegetation often forms dense thickets in the study area with herbaceous species such as stinging nettle. Hydrophytic vegetation is present at five of the 12 upland sites, demonstrating that the vegetation community is not always the determining factor between uplands and wetlands in the study area. An example of open hemlock forest upland vegetation is shown inlnset 9.

Soils at most upland sites were generally silty or sandy and well-drained, with no indicators of hydric soil. One upland site, however, at wetland data form Site 135, displayed primary indicators of hydrophytic vegetation and hydric soil, but no indicators of wetland hydrology. Both vegetation and soil indicators were borderline at the site, with many facultative upland plant species present and only 10 percent redox concentrations present in the soil (the minimum amount needed to meet the Alaska Redox indicator). This site appears to be a remnant streambed, and while some inundation may occur due to snowmelt, it is not expected that it persists long enough into the growing season for this site to be determined wetland. No hydrology indicators were present at the other upland sites.



Inset 9: Upland open hemlock forest at Site 100

Multiple disturbed upland areas are present in the northeastern study area, likely from logging activities. A number of unmaintained dirt roads, now utilized as ATV trails due to the regrowth of vegetation, cross the area. Invasive and non-native species such as sweetclover (*Melilotus officinalis*) and common dandelion (*Taraxacum officinale*) were observed in disturbed areas.



## 5.0 Wetland Mapping Results

Wetland/upland determinations were made at 19 sites where Wetland Determination Forms were completed and at an additional 43 sites where Observation Points were documented.

Approximately 259.3 acres (approximately 6 percent) of the 4,579.6-acre study area was identified as wetlands and waterbodies. Wetland types include forested, scrub-shrub, and emergent wetlands. The remaining 4,320.3 acres of the study area was identified as upland. Wetland and waterbody classes found within the study area and acreages of each NWI classification type are provided in Table 7.

NWI Code	Description	Acres
Forested Wetla	ands	
PFO4/SS1B	Saturated needle-leaved evergreen/deciduous scrub shrub wetland	11.6
PFO4/SS1C*	Seasonally flooded needle-leaved evergreen/deciduous scrub-shrub wetland	2.0
	Total Forested Wetlands	13.6
Scrub-Shrub V	Vetlands	
PSS1A	Temporarily flooded broad-leaved deciduous scrub-shrub wetland	10.8
PSS1B*	Saturated broad-leaved deciduous scrub-shrub wetland	11.2
PSS1C*	Seasonally flooded broad-leaved deciduous scrub-shrub wetland	9.2
PSS1F*	Semipermanently flooded broad-leaved deciduous scrub-shrub wetland	0.6
PSS1/EM1B	Saturated broad-leaved deciduous/scrub-shrub/persistent emergent wetland	6.7
PSS1/EM1C	Seasonally flooded broad-leaved deciduous/scrub-shrub/persistent emergent wetland	13.4
PSS1/EM1F	Semipermanently flooded broad-leaved deciduous/scrub-shrub/ persistent emergent wetland	0.1
	Total Scrub-Shrub Wetlands	52.0
Emergent Wet	lands	
PEM1B	Saturated persistent emergent wetland	0.2
PEM1C	Seasonally flooded persistent emergent wetland	0.8
PEM1F	Semipermanently flooded persistent emergent wetland	6.8
	Total Emergent Wetlands	7.8
Ponds		
PUBH	Permanently flooded unconsolidated bottom pond	2.3
PUBHx	Permanently flooded unconsolidated bottom excavated pond	0.7
	Total Ponds	3.0
Streams and G	ravel Bars	
R2UBH	Permanently flooded lower perennial unconsolidated bottom stream	3.9
R2UBH/USA	Permanently flooded lower perennial unconsolidated bottom stream and associated temporarily flooded gravel bars	17.5
R2UBH/USC	Permanently flooded lower perennial unconsolidated bottom stream and associated seasonally flooded gravel bars	22.3
R2USA	Temporarily flooded lower perennial stream gravel bars	32.1
R3UBH*	Permanently flooded upper perennial unconsolidated bottom stream	3.2
R3UBH/USA	Permanently flooded upper perennial unconsolidated bottom stream and associated temporarily flooded gravel bars	101.3
R3UBH/USC	Permanently flooded upper perennial unconsolidated bottom stream and associated seasonally flooded gravel bars	1.1
		•



Table 7. Wetland, Waterbody, and Upland Mapping Summary				
NWI Code	Description	Acres		
R3USC	Seasonally flooded upper perennial stream gravel bars	1.5		
	Total Streams	182.9		
18*Includes N	WI types denoted with modifier "b" in mapping, indicating the influence of beaver activity (i.e., flooding,	).		
	Total Wetland and Other Waters of the U.S.	259.3		
	Uplands	4,320.3		
	Total Study Area	4,579.6		

Streams that were too small to be mapped as polygons in GIS were mapped as linear features. These stream types and the linear miles of each are summarized in Table 8.

Table 8. Stream Line Mapping Summary				
NWI Code	Description	Linear Miles		
R3UBH	Permanently flooded upper perennial unconsolidated bottom stream	14.1		
R4SBC	Seasonally flooded intermittent stream	7.4		
	Total Streams	21.5		

Figures 4 through 11 display the wetland, upland, and waterbody boundaries, and the boundaries between different wetland and waterbody types identified in the study area. Locations of the Wetland Determination Form sites and Observation Points collected during the fieldwork are also shown on the figures.

## 6.0 Jurisdictional Status

This wetland delineation was prepared in compliance with the *USACE Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement* (USACE 2007). The on-site determination conducted by HDR from July 19 to 22, 2017, indicates that of the total 4,579.6 acres in the study area, there are approximately 259.3 acres of potentially jurisdictional wetlands or waterbodies and approximately 21.5 linear miles of streams potentially subject to USACE regulations.

Based on the current USACE guidance on jurisdiction, the USACE will assert jurisdiction over Traditional Navigable Waters (TNWs), wetlands adjacent to TNWs, relatively permanent waters (RPWs) that flow into TNWs, and wetlands that abut those RPWs. RPWs are defined as those tributaries that have flow year-round or at least seasonally (e.g., typically 3 months; USEPA and USACE 2008).

A case-by-case analysis will be conducted by USACE for all wetlands that do not abut an RPW, but are bordering, contiguous or neighboring an RPW. A number of the naturally-occurring wetlands and waterbodies in the study area do not abut or have a direct surface water connection to TNWs or RPWs that flow into TNWs. However, due to their close proximity to jurisdictional waters (most study area wetlands are within 1,000 feet of a RPW) USACE would likely consider most naturally-occurring wetlands and waterbodies (258.4 acres and 21.0 miles of streams) within the study area either an RPW or neighboring an RPW and would therefore likely assert their jurisdiction under Section 404 of the Clean Water Act.

The small depressional wetland (0.3 acre) represented by Site 112 lacks a surface water inlet or outlet and is surrounded by uplands. Five streams in this area represented by Sites 109, 110, 111, 123, 124, 169, 170, and 171 totaling 0.5 linear mile originate as seeps and appear to go subsurface into well-drained soils, lacking a surface water connection to downgradient wetlands or waterbodies. Based on interpretation of topographic data, the hydraulic gradient in this area appears to be north or northeast. The nearest wetland or waterbody to the north is the Klehini River, which is located more than 2,900 feet from these streams. It is unlikely that these features have a chemical, biological, or physical connection to Glacier Creek or the Klehini River and therefore may not be considered subject to USACE jurisdiction.

Three man-made ponds in the study area represented by Sites 81, 83, and 172 (0.7 acre) have been created for gravel extraction. These ponds (classified as PUBHx) have been excavated out of uplands and are surrounded by uplands with no surface water connection to other waterbodies. It is likely that USACE would not assert jurisdiction over these excavated areas.

## 7.0 References Cited

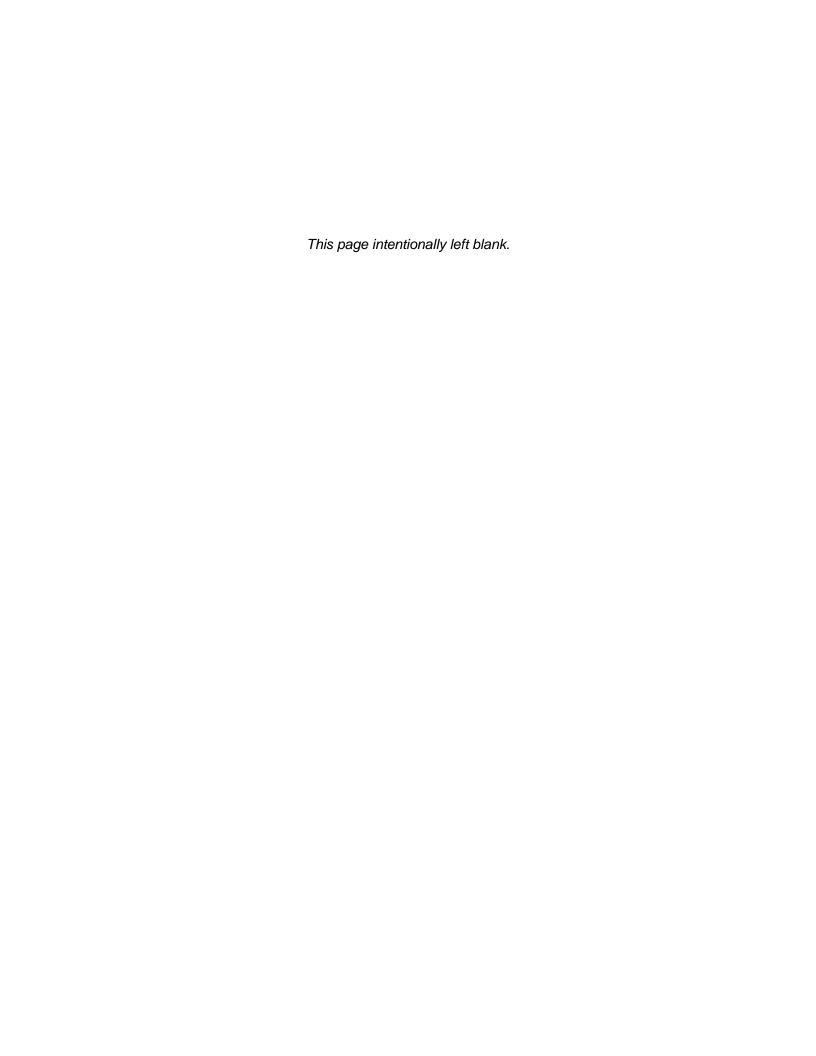
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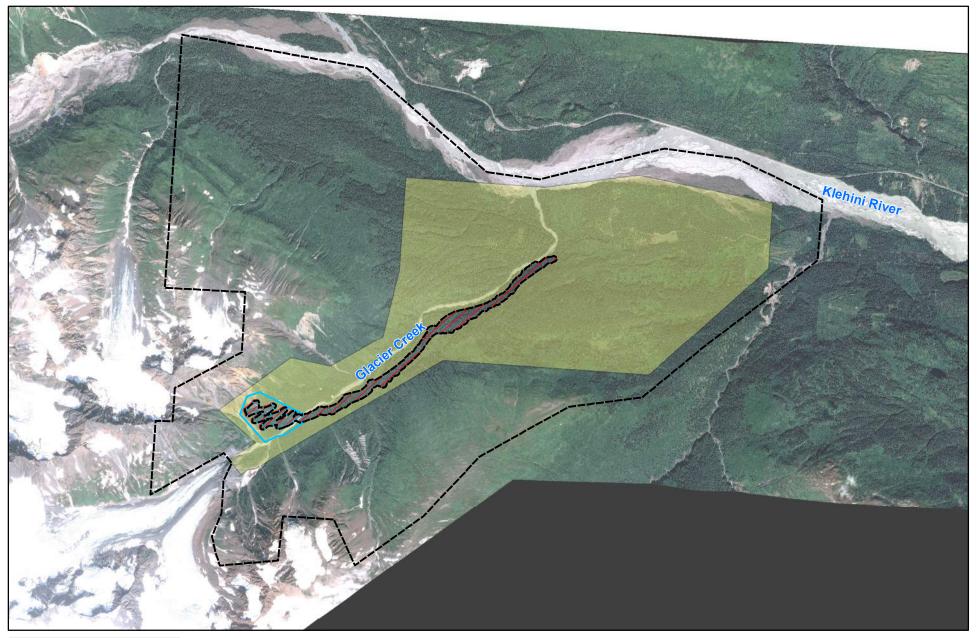


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Figures



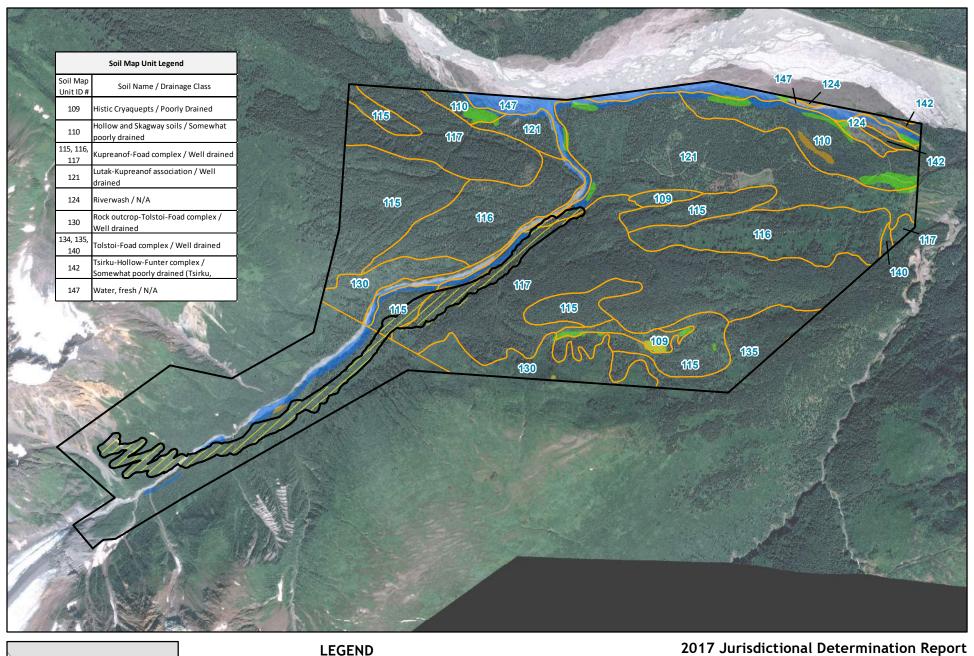




## Legend

2013 JDR Study Area
2015 Office-Based Mapping Area
2017 Office-Based Mapping Area
2017 JDR Study Area

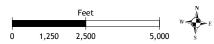
2017 Jurisdictional Determination Report Study Area Overview / Previous Mapping Areas Figure 1 of 11

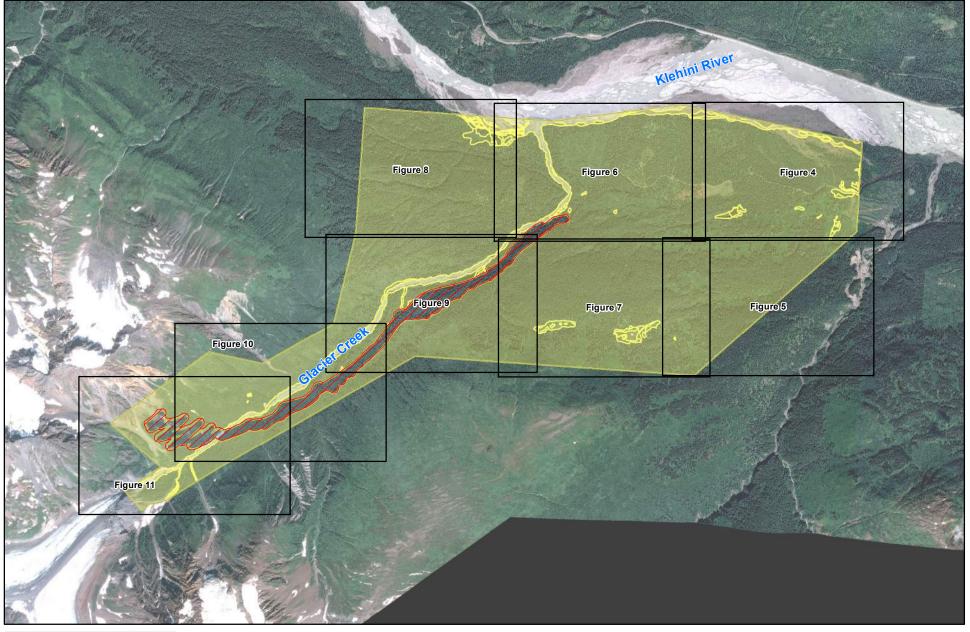






#### 2017 Jurisdictional Determination Report National Wetlands Inventory and Soil Survey Mapping Figure 2 of 11







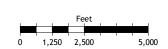
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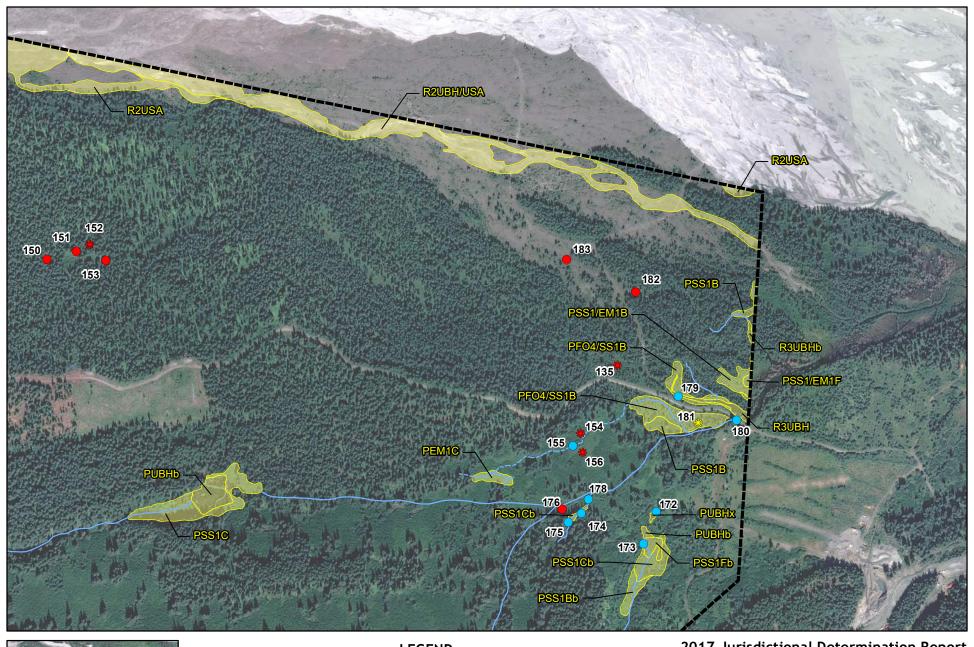
Wetland and Waterbody Figure Extent

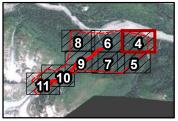
2013 JDR Study Area

2017 JDR Study Area

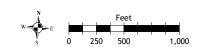


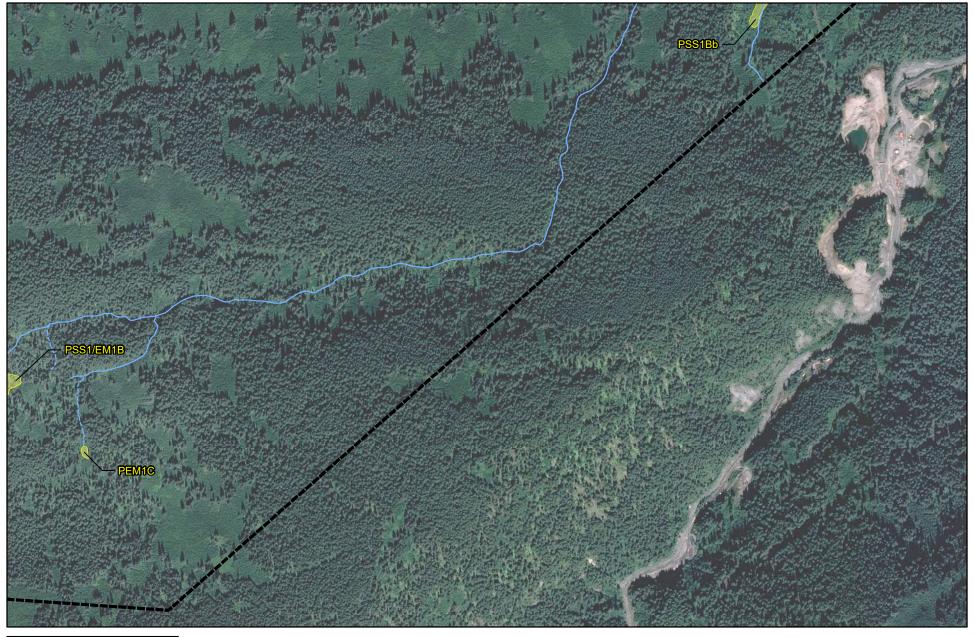






#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 4 of 11

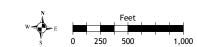


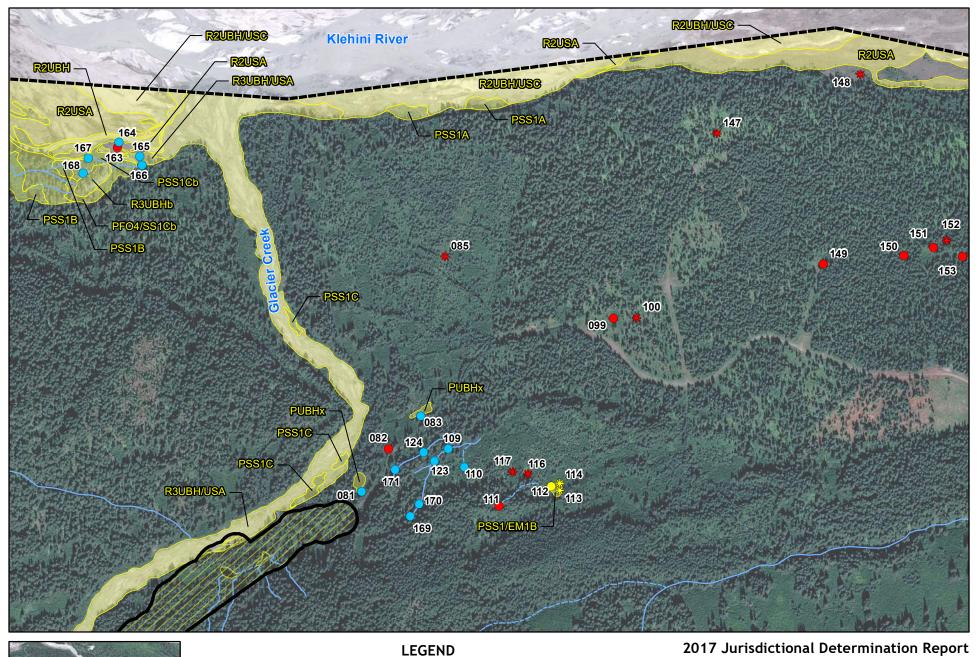


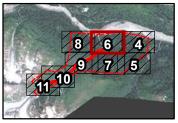




#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 5 of 11





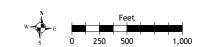


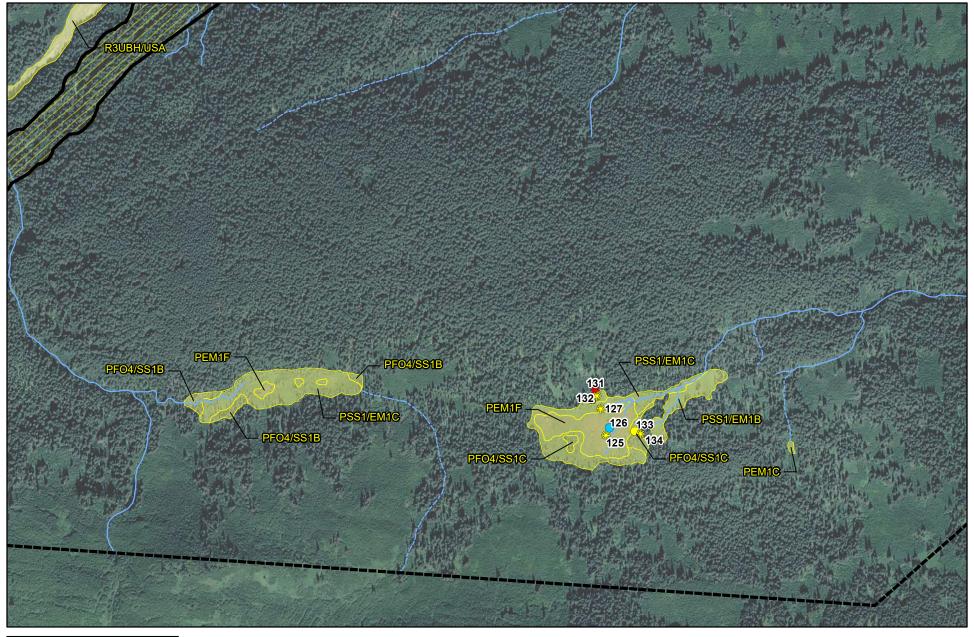
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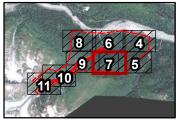
Observation Point - Waterbody

Wetlands and Waterbodies

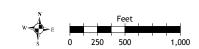
#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 6 of 11

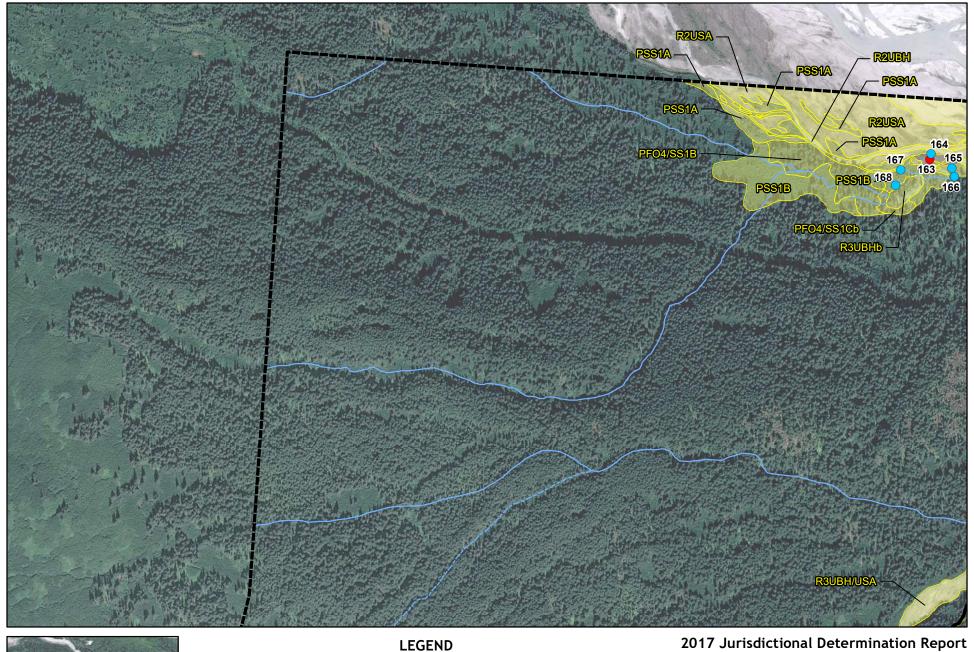


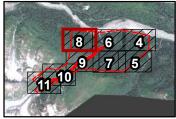




#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 7 of 11

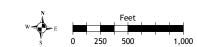


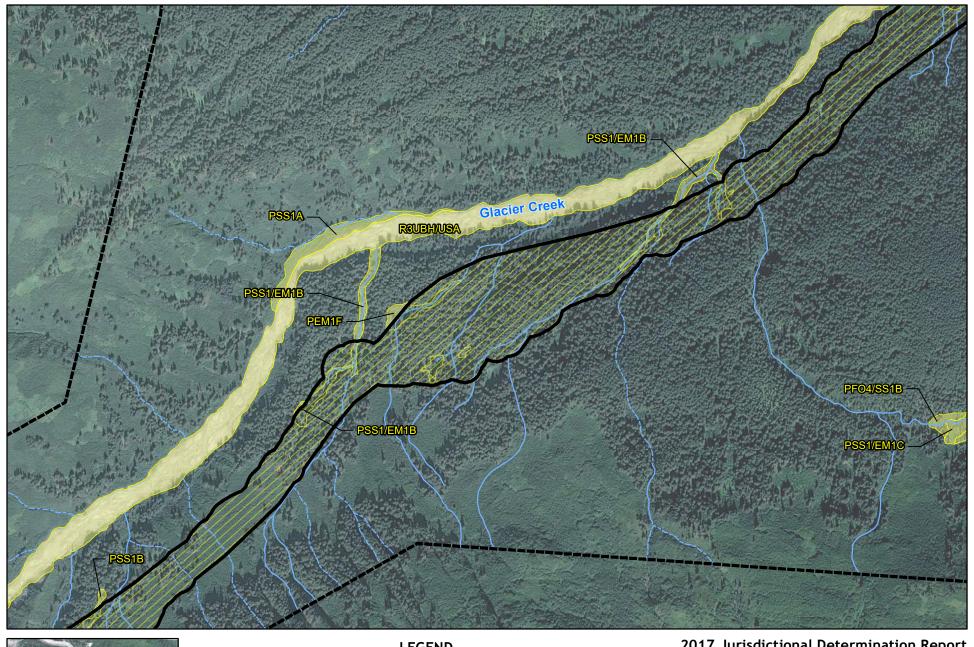


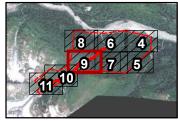


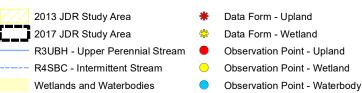
#### LEGE

#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 8 of 11

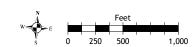


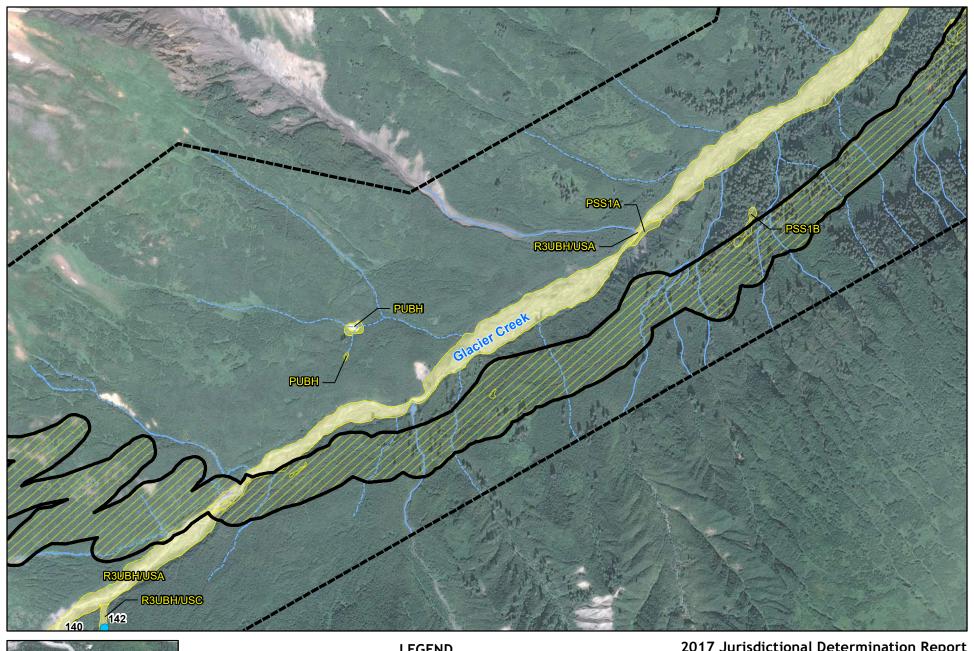


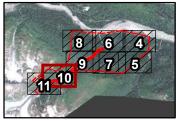




#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 9 of 11







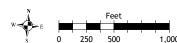
2013 JDR Study Area 2017 JDR Study Area R3UBH - Upper Perennial Stream R4SBC - Intermittent Stream

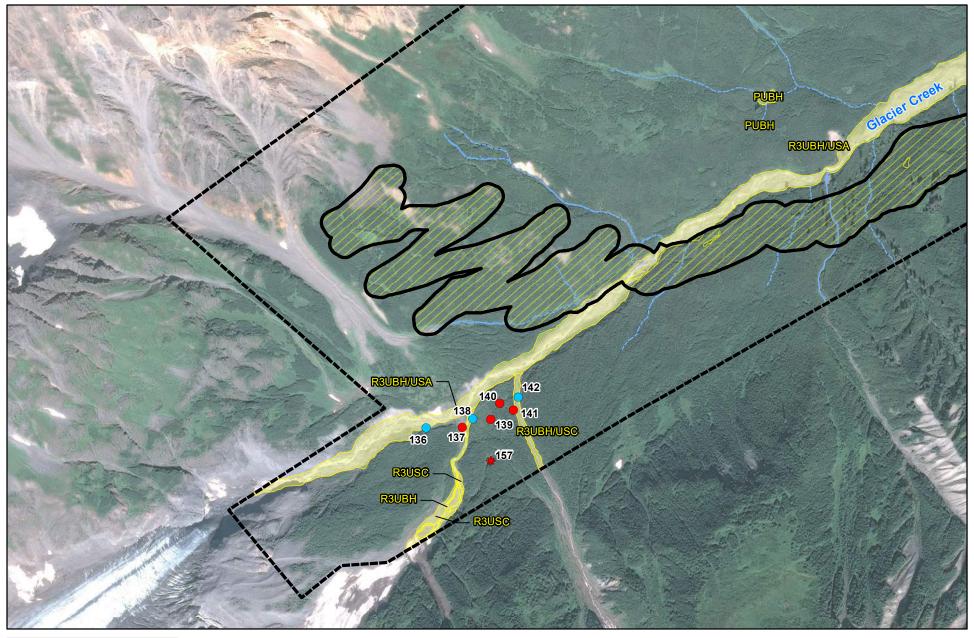
Wetlands and Waterbodies

Data Form - Upland Data Form - Wetland Observation Point - Upland

Observation Point - Wetland Observation Point - Waterbody

#### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 10 of 11

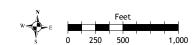


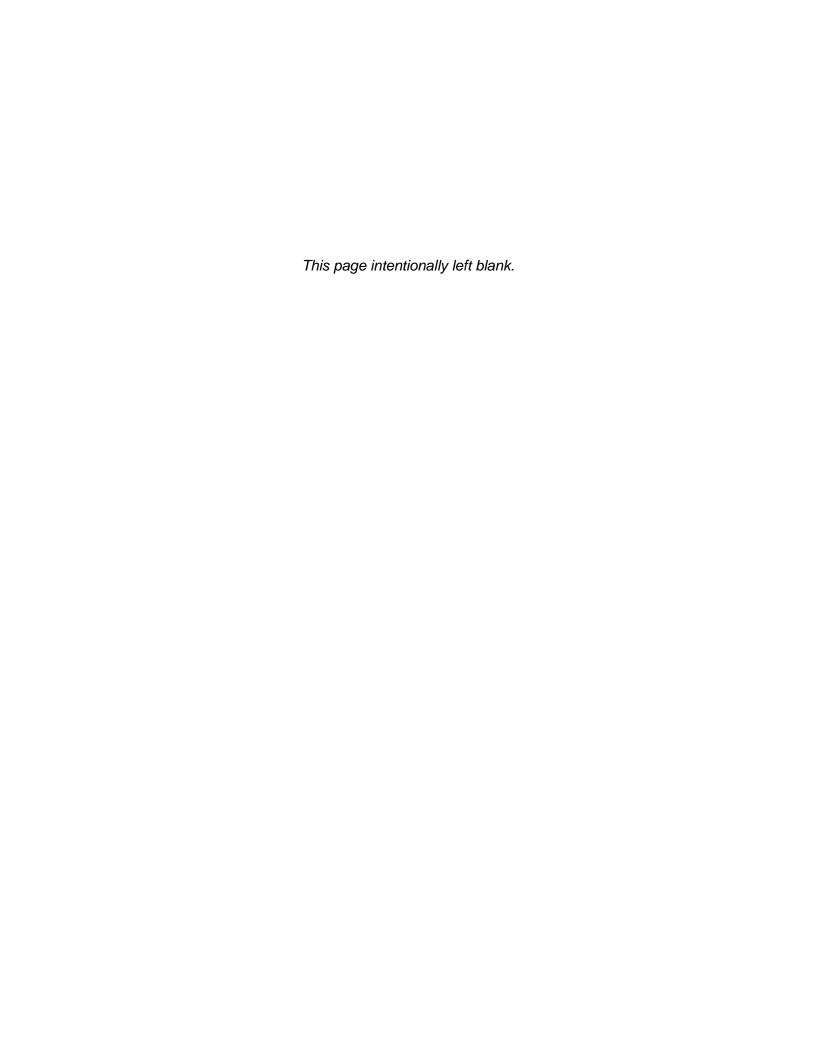






### 2017 Jurisdictional Determination Report Wetland and Waterbody Mapping Figure 11 of 11

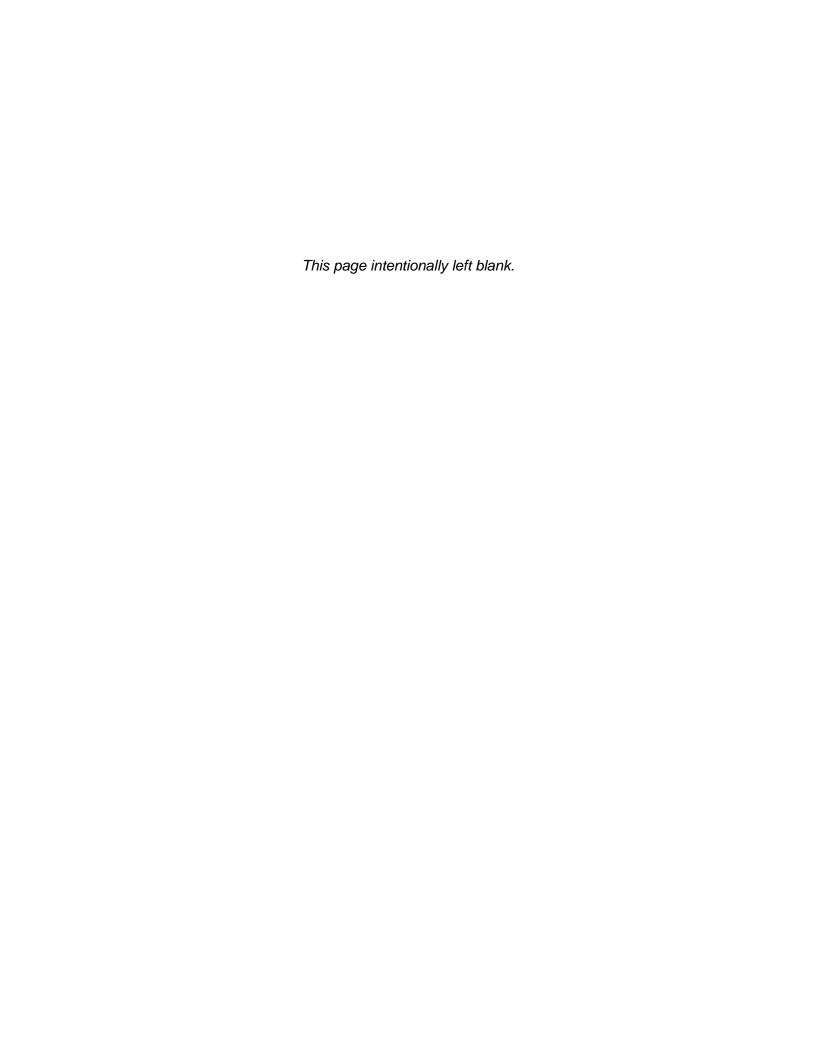




# Appendix A

Wetland Determination Data Forms and Photographs

July 19-22, 2017



Applicant/Owner: (outtantive	Sampling Point #: 085
Investigator(s): dong well, even commission Fin	m: HDR Alaska, Inc.
	ed on GPS #: Marked on map? Field Map #:
Subregion (circle one) SE Southcentral Western Aleutian Interior Northern La	
Local relief: Shape across slope: linear/ convex / concave Shape up/downslope: linear	
Photo nos./descriptions: 380-301 501- 302-305 VEZ 205-305 Neg Pt Camera #:	MIS Van Type (Vierock Level 4 or other)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: \( \sqrt{No}: \)	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal C	
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, expl	
	iain answers nere.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No Is the sampled	l area
Hydric Soil Present? Yes No within a wetta	
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). %	6 can total >100%. Use 2012 indicator status:
Tree Stantum (disks 25)	Dominance Test worksheet:
Tree Stratum (dbh≥ 3")  Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species 7
1. Picca Eitch 5 Y FACU 5.	That are OBL, FACW, or FAC:
2. Tsuga het T FAC 6.	Total Number of Dominant
3. 20, 500	Species Across All Strata: 7
4 8	
Total Tree Cover: 15	Percent of Dominant Species That are OBL, FACW, or FAC:
	That are OBL, FACW, or FAC:
50% of total cover: 3 20% of total cover: 3 Sapling/Shrub Stratum (woody plants < 3" dbh)	
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	Total % Cover of:Multiply by
1. Alnus sin 7 Y Fac 7. VIb edule T TAC	I UBL species X1=
2 Rubus spec 3 Y Facu 8. Vaccion chi 2 A	FACW species X2=
3. Sambrea Rec & FACEL 9. Tri College	- FAC species 14 X3= 48
d : 11 d	FACU species 24 X4= 294
	HUM UPL + NL species 84 X5= 420
6 Ros aci T Facu 12 Tours het 2 PA	Column Totals: 174 (A) 764
Pica sit 2 Total Sapling/Shrub Cover: 2 Pic	Column rotals. 177 (A)
Total Sapling/Shrub Cover:	- 44.4
50% of total cover: 15 20% of total cover: 6	Prevalence Index = B/A = 4.4
Abs. Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
Abs. Cov. % Dom? Ind. Abs. Cov. % Dom? Ind.  1. Foi angles 40 Y FACU 12.	d.
2. Cornes Co.M	Hydrophytic Vegetation Indicators:
3. Galbon trift I FAC 14.	Dominance Test is>50%
4.Tara off T FACU15.	Prevalence Index is ≤3.0
5. Malicham spac T FACU16.	✓ Morphological Adaptations¹ (Provide suppo
6. Hieraum all 4 NL 17.	Morphological Adaptations¹ (Provide suppodata in Remarks or on a separate sheet)
7. Ante lan () T 18.	
8. Ely G/a @ 3 FACM 19.	Problematic Hydrophytic Vegetation <sup>1</sup> (Expl
9. Tri rapens ( titt) 2 FACU 20.	Charles and the state of the st
10. Brom 5161@ 80 Y NL 21.	Indicators of hydric soil and wetland hydrology m
11 22	be present unless disturbed or problematic.
Total Herb Cover: (29	
	Madeanhada
50% of total cover: <u>18 64.5</u> 20% of total cover: <u>24.25.8</u>	Vacatation Van Na A
Circular 1/10-ac plot or other plot dimension: % of bare ground:	Present?
	%
% Cover of Wetland Bryophytes % Total Cover of Bryophytes (where applicable)	
(where applicable)  Remarks: ± 5 not in Figure so not 10% on Species	

Profile Description: (Describe to the dep	th readed to document the	indicator or confi	m the char	and the standards		Sampling Point #: 08
Depth Horizon Soil Matrix			m the abse	nce of indicato		
		edox Features			a,a dip.	Remarks
(in.) (opt.) Color (moist)	% Color (moist)	% Type¹	Loc2	Texture	neg)	(or use comment number
0-16+ IS 10YR22		. —		Sal		40% gravel/robbies
					TAN	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					1 15	1368
			(60)		A HE	
		. —	6			
						W
Type: C = Concentration, D = Depletion,	RM = Reduced Matrix, CS	Coated Sand Gra	ins <sup>2</sup> Locatio	n: PL = Pore	Lining, RC	= Root Channel, M = Mat
Hydric Soil Indicators (check ones that a	apply, measure from top o	f mineral layers (	inless othe	rwise noted)		
Standard Indicators:	Indicators t	or Problematic H	ydric Soils	3.		
N Histosol or Histel (A1) (≥16"organic su	irface, A/ Alacks	Color Change <sup>4</sup> (T	(AA)	³Or	e indicator	of hydrophytic vegetation.
sat'd during wet period of growing sea	3011/	Color Change (1	A4)	one	primary inc	dicator of wetland
M Histic Epipedon (A2) (8-16" organics, undertain by mineral soll with chroma:	sat'd, N Alaska	Alpine Swales (Ta	A5)	nyo	irology, and ition must b	an appropriate landscape e present unless disturbe
N Hydrogen Sulfide (A4) (within 12 of gr	nund 4.1			OF D	roblematic.	
surface; @ in this pit	N Alaska	Redox with 2.5Y	Hue	"Gi	ve details of	color change in Remarks
N Thick Dark Surface (A12)	N Alaska	Gleyed without H	ue 5Y or Re	edder		
4	Und	erlying Layer				
N Alaska Gleyed (A13)		e.g., see p.91 of 200				
N Alaska Redox (A14)	Supp	lement; explain in Re	marks)			
N Alaska Gleyed Pores (A15)						
Restrictive Layer (if present)	Drainage Cla					,
Type: hone  Depth (inches)	Soil Map Un	it Name:	Hyd	iric Soil Pres	ent?	Yes No
	18 11 1/16			E C	7 - 5	See Eginned his
3.	18 July 1			1, 42 -/f		
YDROLOGY	s that apply, measure fro	m soil surface);	Seco	ndary Indicato	ers (at least	2 are required)
POROLOGY  Vetland Hydrology Indicators (check one primary Indicators (any one indicator is su		m soil surface);	<u>~</u> v	Vater-Stained	Leaves (BS	9)
2. 2. 3. YDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is su			<u>~</u> v	Vater-Stained	Leaves (BS	9)
VDROLOGY Vetland Hydrology Indicators (check one rimary Indicators (any one indicator is su	ufficient)	66)	N E	Vater-Stained Prainage Patte	Leaves (B9 oms (B10) _	9)
VDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) (w/in 12*)	<u>rfficient)</u> ☑ Surface Soil Cracks (B	66) Aerial Imagery (B7	) <u> </u>	Vater-Stained Prainage Patte Oxid'd Rhizosp Presence of Re	Leaves (BS ems (B10) _ pheres on L educed iron	iving Roots (C3) (within 12"
YDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")	ufficient)  Surface Soil Cracks (E  Inundation Visible on A  Sparsely Vegetated Co	66) Aerial Imagery (B7	N P P	Vater-Stained Prainage Patte Oxid'd Rhizosp Presence of Re (pos. a,a or s	Leaves (BS erns (B10) _ oheres on L educed iron soil color ch	(ving Roots (C3) (within 12
Vetland Hydrology Indicators (check one rimary Indicators (any one indicator is su Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")	ufficient)  ∆ Surface Soil Cracks (E  ↑ Inundation Visible on A  ↑ Sparsely Vegetated Co  ↑ Marl Deposits (B15)	16) Aerial Imagery (B7 Oncave Surface (B	N E N E N E N S	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Re (pos. a,a or s Stalt Deposits (	Leaves (B9 erns (B10) _ oheres on L educed iron soil color ch C5)	iving Roots (C3) (within 12" (C4) ange w/in 12")
Vertland Hydrology Indicators (check one rimary Indicators (any one indicator is su Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)	Ifficient)  Surface Soil Cracks (B  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	V   V   C   C   C   C   C   C   C   C	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Re (pos. a,a or seatt Deposits ( Stunted or Street	Leaves (B9 ems (B10) _ oheres on L educed iron soil color ch C5)'	o) diving Roots (C3) (within 12" (C4) ange w/in 12") s (D1)
YDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	Afficient)  Surface Soil Cracks (E  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo  Dry-Season Water Tal	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	N N N N N N N N N N N N N N N N N N N	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Re (pos. a,a or s salt Deposits ( stunted or Stre Seomorphic P	Leaves (BS oms (B10) _ oheres on L educed iron soil color ch C5)' essed Plant osition (D2)	o) diving Roots (C3) (within 12" (C4) ange w/in 12") s (D1)
High Water Table (A2) (w/in 12*)  Saturation (A3) (w/in 12*)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	Ifficient)  Surface Soil Cracks (B  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Re (pos. a,a or seatt Deposits ( Stunted or Street	Leaves (BS ems (B10) _ oheres on L educed iron soil color ch C5)' essed Plants osition (D2) and (D3)	oly diving Roots (C3) (within 12" (C4) ange w/in 12") s (D1)
YDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	Afficient)  Surface Soil Cracks (E  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo  Dry-Season Water Tal	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	N   N   N   N   N   N   N   N   N   N	Vater-Stained Prainage Patter Dxid'd Rhizosponic Presence of Researce of	Leaves (BS)  coms (B10) _ coheres on L educed iron coil color ch (C5)' cossed Plant cosition (D2) crd (D3) perch H2O hic Relief (E	oly diving Roots (C3) (within 12" (C4) ange w/in 12") s (D1)
Vertland Hydrology Indicators (check one Primary Indicators (any one indicator is su Surface Water (A1)  ☐ High Water Table (A2) (w/in 12") ☐ Saturation (A3) (w/in 12") ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4)	Afficient)  Surface Soil Cracks (E  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo  Dry-Season Water Tal	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	N   N   N   N   N   N   N   N   N   N	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Ri (pos. a,a or sist Deposits ( Stunted or Stre Geomorphic Pi Shalfow Aquita W/in 24", can Illerotopograp AC Neutral To	Leaves (BS ems (B10) _ cheres on L educed iron coil color ch C5)' essed Plant osition (D2) and (D3) perch H2O hic Relief (Dest (D5)	iving Roots (C3) (within 12" (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water)
VDROLOGY  Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  ☐ High Water Table (A2) (w/in 12")  ☐ Saturation (A3) (w/in 12")  ☐ Water Marks (B1)  ☐ Sediment Deposits (B2)  ☐ Drift Deposits (B3)  ☐ Algal Mat or Crust (B4)  ☐ Iron Deposits (B5)	Ifficient)  Surface Soil Cracks (B  Inundation Visible on A  Sparsely Vegetated Co  Marl Deposits (B15)  Hydrogen Sulfide Odo  Dry-Season Water Tat  Other (explain)	66) Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12")	N   N   N   N   N   N   N   N   N   N	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Ri (pos. a,a or sist Deposits ( Stunted or Stre Geomorphic Pi Shalfow Aquita W/in 24", can Illerotopograp AC Neutral To	Leaves (BS ems (B10) _ cheres on L educed iron coil color ch C5)' essed Plant osition (D2) and (D3) perch H2O hic Relief (Dest (D5)	olying Roots (C3) (within 12" (C4) ange w/in 12") s (D1) w/in 12")
Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)	Ifficient)  Surface Soil Cracks (E Inundation Visible on A Sparsely Vegetated Co Marl Deposits (B15) Hydrogen Sulfide Odo Dry-Season Water Tat Other (explain)	Aerial Imagery (B7 oncave Surface (B r (C1) (w/in 12") ble (C2) (w/in 24")	N   N   N   N   N   N   N   N   N   N	Vater-Stained  Prainage Patte  Dxid'd Rhizosp  Presence of Re  (pos. a,a or s  salt Deposits (  Stunted or Stre  Geomorphic Pe  Shalfow Aquita  w/in/24*, can  flicrotopograp  AC Neutral Te  (# OBL+FACW	Leaves (BS ems (B10) _ cheres on L educed iron coil color ch C5)' essed Plant osition (D2) and (D3) perch H2O hic Relief (Dest (D5)	iving Roots (C3) (within 12" (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water)
/DROLOGY Vetland Hydrology Indicators (check one rimary Indicators (any one indicator is sure Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  ald Observations (in. from ground surface) ourface Water Present?  Yes  Vetalogy  Vetalogy	A Surface Soil Cracks (E) Inundation Visible on A Sparsely Vegetated Co Marl Deposits (B15) Hydrogen Sulfide Odo Dry-Season Water Tat Other (explain)	Aerial Imagery (B7) Doncave Surface (B or (C1) (w/in 12") Die (C2) (w/in 24")	N   N   N   N   N   N   N   N   N   N	Vater-Stained  Prainage Patte  Dxid'd Rhizosp  Presence of Re  (pos. a,a or s  salt Deposits (  Stunted or Stre  Geomorphic Pe  Shalfow Aquita  w/in/24*, can  flicrotopograp  AC Neutral Te  (# OBL+FACW	Leaves (BS ems (B10) _ cheres on L educed iron coil color ch C5)' essed Plant osition (D2) and (D3) perch H2O hic Relief (Dest (D5)	iving Roots (C3) (within 12" (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water)
Vetland Hydrology Indicators (check one primary Indicators (any one indicator is surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from ground surface) urface Water Present?  Yes  ater Table Present?  Yes  Area one indicators (check one one indicator is surface) area one indicator is surface.	Minimizer Soil Cracks (E. Surface Soil Cracks (E. Inundation Visible on A. Sparsely Vegetated Co. Mari Deposits (B15)  Hydrogen Sulfide Odo Dry-Season Water Tat  Other (explain)  Depth of water Soil Cracks (E. Soil Cracks)  Depth to water Soil Cracks (E. Soil Cracks)	Aerial Imagery (B7) Oncave Surface (B) or (C1) (w/in 12") Ole (C2) (w/in 24")  er (in.)	N   N   N   N   N   N   N   N   N   N	Vater-Stained  Prainage Patte  Dxid'd Rhizosp  Presence of Re  (pos. a,a or s  salt Deposits (  Stunted or Stre  Geomorphic Pe  Shalfow Aquita  w/in/24*, can  flicrotopograp  AC Neutral Te  (# OBL+FACW	Leaves (BS ems (B10) _ cheres on L educed iron coil color ch C5)' essed Plant osition (D2) and (D3) perch H2O hic Relief (Dest (D5)	iving Roots (C3) (within 12" (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water)
VDROLOGY Vetland Hydrology Indicators (check one Primary Indicators (any one indicator is sure Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Field Observations (in. from ground surface) urface Water Present?  Ves  Seeping	Ifficient)  Surface Soil Cracks (E Inundation Visible on A Sparsely Vegetated Co Marl Deposits (B15) Hydrogen Sulfide Odo Dry-Season Water Tat Other (explain)  Depth of water in at that depth but not yell	Aerial Imagery (B7) Concave Surface (Br (C1) (w/in 12") Die (C2) (w/in 24")  Der (in.)  En (in.)  filled?:	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Re (pos. a,a or s salt Deposits ( Stunted or Stre Seomorphic P Shalfow Aquita w/in-24", can Illcrotopograp AC Neutral To (# OBL+FACW	Leaves (BS)  coms (B10) _ coheres on L educed iron coil color ch (C5)' cossed Plant cosition (D2) cord (D3) perch H2O hic Relief (D est (D5) dominants	iving Roots (C3) (within 12") (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
Vertland Hydrology Indicators (check one Primary Indicators (any one indicator is surface Water (A1)  J. Surface Water (A1)  J. High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  J. Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from ground surface)  urface Water Present?  Seeping  aturation Present? Yes  Seeping	Minimizer Soil Cracks (E. Surface Soil Cracks (E. Inundation Visible on A. Sparsely Vegetated Co. Mari Deposits (B15)  Hydrogen Sulfide Odo Dry-Season Water Tat  Other (explain)  Depth of water In at that depth but not yet to sat.	Aerial Imagery (B7) Oncave Surface (B) or (C1) (w/in 12") Ole (C2) (w/in 24")  er (in.) filled?: (in.)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Vater-Stained  Prainage Patte  Dxid'd Rhizosp  Presence of Re  (pos. a,a or s  salt Deposits (  Stunted or Stre  Geomorphic Pe  Shalfow Aquita  w/in/24*, can  flicrotopograp  AC Neutral Te  (# OBL+FACW	Leaves (BS)  coms (B10) _ coheres on L educed iron coil color ch (C5)' cossed Plant cosition (D2) cord (D3) perch H2O hic Relief (D est (D5) dominants	iving Roots (C3) (within 12") (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
/DROLOGY Vetland Hydrology Indicators (check one rimary Indicators (any one indicator is surface Water (A1)    Surface Water (A1)	Micient)  Surface Soil Cracks (E) Inundation Visible on A Sparsely Vegetated Co Marl Deposits (B15) Hydrogen Sulfide Odo Dry-Season Water Tat Other (explain)  Depth of water Tat No Depth to water Tat Dep	acial Imagery (B7) concave Surface (B) or (C1) (w/in 12") cole (C2) (w/in 24") cole (in.) cr (in.) filled?: Unknown	8) N S S S S S S S S S S S S S S S S S S	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Ro (pos. a,a or s salt Deposits ( Stunted or Stre Seomorphic Po shalfow Aquita w/in-24", can flicrotopograp AC Neutral To (# OBL+FACW	Leaves (BS)  coms (B10) _ coheres on L educed iron coil color ch (C5)' cossed Plant cosition (D2) cord (D3) perch H2O hic Relief (D est (D5) dominants	iving Roots (C3) (within 12") (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
/DROLOGY  Vetland Hydrology Indicators (check one rimary Indicators (any one indicator is sue Surface Water (A1)  J. Surface Water (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  J. Sediment Deposits (B2)  Drift Deposits (B3)  Aigal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from ground surface)  urface Water Present?  Seeping	Micient)  Surface Soil Cracks (E) Inundation Visible on A Sparsely Vegetated Co Marl Deposits (B15) Hydrogen Sulfide Odo Dry-Season Water Tat Other (explain)  Depth of water Tat No Depth to water Tat Dep	acial Imagery (B7) concave Surface (B) or (C1) (w/in 12") cole (C2) (w/in 24") cole (in.) cr (in.) filled?: Unknown	8) N S S S S S S S S S S S S S S S S S S	Vater-Stained Prainage Patte Dxid'd Rhizosp Presence of Ro (pos. a,a or s salt Deposits ( Stunted or Stre Seomorphic Po shalfow Aquita w/in-24", can flicrotopograp AC Neutral To (# OBL+FACW	Leaves (BS)  coms (B10) _ coheres on L educed iron coil color ch (C5)' cossed Plant cosition (D2) cord (D3) perch H2O hic Relief (D est (D5) dominants	iving Roots (C3) (within 12") (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)





Site 085: Soil, July 19, 2017



Site 085: Soil, July 19, 2017



Site 085: Vegetation, looking north on July 19, 2017



Site 085: Vegetation, looking south on July 19, 2017

Project: Palmer VM & Borough/City: JNU Haires	Date: 7.19.2017
Applicant/Owner: Constactive	Sampling Point #: 100
	DR Alaska, Inc.
Lat. (dec.") 59.42311 Long. 136. 28477 ± NAD 83 Recorded on	
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landfor	
Local relief: Shape across slope linear /convex / concave Shape up/downslope linear/ convex / concave	
Photo nos /descriptions: 313-14 Soil; 315-316 veg Camera #: Mas	61
Are climatic / hydrotogic conditions on the site typical for this time of year? Yes: V No:	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circu	
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain a	answers here. premonely cleared area; logged.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No Is the sampled are	a
Hydric Soil Present? Yes No within a wetland?	
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % car	
Tree Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
1. Tsnga het 15 Y FAC 5.	That are OBL, FACW, or FAC:(A)
2 Picest sitch & FACU 6.	Total Number of Dominant Species Across All Strata:
4. B	Species Across All Strata: (B)
Total Tree Cover: 15	Percent of Dominant Species
13	That are OBL, FACW, or FAC: 33 % (A/B)  Prevalence Index worksheet:
50% of total cover: 7.5 20% of total cover: 3  Sepling/Shrub Stratum (woody plants < 3" dbh)	
Sapling/Shrub Stratum (woody plants < 3" dbh)  Abs.Cov.% Dom? Ind.  Abs.Cov.% Dom? Ind.	Total % Cover of: Multiply by:
1. Buga het 40 Y FAC 7. VACCOVAL 8 3 FAC	OBL species X1=
2. Picco sitch 10 Y Fley 8. Pop tri 3 FACU	FACW species 2 X2= 4
3. Oplopus ham 10 Y FACY 9. Vacc alook 7 PACY	FAC species 90 X3= 270
4. Alnu Sin 5 FAC 10. Vib edule 5 PACUL  5. Ribes lac 2 TAC 11. Ribes 2	FACU species 96 X4= 384
6 Cornus can 10 Y FACU 12 MORE For 2 FACU	UPL + NL species 3 X5= 15
	Column Totals: 191 (A) 673 (B)
Rubus spec 2 Total Sapling/Shrub Cover: 110 Saliabac 2 - The	252
50% of total cover: 55 20% of total cover: 22 Herb Stratum	Prevalence index = B/A = 3.62
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
1. Gymn dry 35 Y FACU12 Carex Meister T FACH	Hydrophytic Vegetation Indicators:
2 Epi ang (cam) 10 PACH 13. Grix mertension T FREW	
3 prim sec 2 PACH 14 Greep ras T FACH	N Dominance Test is>50% N Prevalence Index is ≤3.0
4 Tierella tr. 9 PAC 15 Cinno (at modify) 2 FACW 5. Extri RIV 4 FAC 16. Athy fil-5 ms 2 FAC	
5. Figur Riv # PAC 16. Athy files 2 PAC 8. Steph amp 3 NL	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
7. Grum mario T FAC 18.	
8. Etamos 30. 2 19.	Problematic Hydrophytic Vegetation¹ (Explain)
9. Hicracon alb T NL 20.	
10. Gral tn T FAC 21	Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
11. Jara off T PACM 22.	to present unless disturbed of problematic.
Total Herb Cover:	
50% of total cover: 34 20% of total cover. 13.6	Hydrophytic Vegetation Yes No
Circular 1/10-ac plot vor other plot dimension: % of bare ground: 5	Present?
% Cover of Wetland Bryophytes% Total Cover of Bryophytes% (where applicable)	
Remarks: bare ground = littled. Wood pecken; Kinglet	
O The line of the	

	Description	: (Describe to the d	epth need	led to document the	indicator	or config	the sheet	nce of Indicate	ne)	Sampling Point #: 100
Depth	Horizon	Soil Matrix			dox Feat		1 110 2030	nco or macan	a,a dip.	
(in.)	(opt.)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	(pos/	Remarks (or use comment number)
0-4	Oi B	5Y4I	40	5YK34	58(55	)	ROM	SiL		Some bured organice (5%
8-18+	82	2.5 Y 2.5/1	70	311134	200	<u> </u>	KUTM	Sa	neg	30% gravels
	02		4-	100					100	so to graves
					_					
			2000		_				11.11	All-market
-			_	F.5	-				_11	A MALE MANAGEMENT OF THE PARTY
1Type: C	= Concept	ration D = Depletion	PM = R	aduced Matrix CS=		and Genie	2l contin	n: Pl = Rom	Lining DC	= Root Channel, M = Matri
				leasure from top of						= Root Channel, M = Matri
	d Indicators			Indicators fo		100			•	
N Hist	tosol or Hist	el (A1) (≥16*organic	surface,			ange <sup>4</sup> (TA		3Or	ne indicator	of hydrophytic vegetation,
		vet period of growing se n (A2) (8-16" organics								dicator of wetland f an appropriate landscape
1		nineral soil with chroma		N Alaska	Alpine Sv	wales (TA	5)	pos	ition must l	be present unless disturbed
N Hyd	trogen Sulfic	de (A4) (within 12"of	ground	N Alaska	Redox wi	th 2.5Y H	ue	or p	problematic ve details o	f color change in Remarks.
. 1	ck Dark Surf			N Alaska	3leyed w	rithout Hu	5Y or Re			
1					rlying La					
	ska Gleyed (			N Other (e			andra)			
	ska Redox (/ ska Gleyed l			Зирре	ment ext	iain in Rem	iarks)			
	e Layer (if p			Drainage Cla	s: Well	Designed			~ 7 2	
Туре:	HONE			Soil Map Unit		h their chi	Hyd	ric Soil Pres	ent?	Yes No V
Depth	(inches)									
Comment	· /-	590		B	T.E.			9.41		
Comment 1. 4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Water N Sedim N Drift D N Algal I	DGY Hydrology I adicators (a	Indicators (check or any one indicator is a 1) (A2) (w/in 12") w/in 12") is (B2) )	Sufficient  Sur  N Inui N Spa N Mai N Hyo Dry	apply, measure from face Soil Cracks (86 indation Visible on Ar arsely Vegetated Cor in Deposits (B15) irogen Sulfide Odor -Season Water Tabl er (expiain)	i) erial Imag ncave Su (C1) (w/ii	gery (B7) Irface (B8		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (Bional Leaves (B10) otheres on Leaduced Ironal Color characteristics (C5) essed Plant (D3) perch H2O hic Relief (Iest (D5)	iving Roots (C3) (within 12") n (C4) nange w/in 12") s (D1) v/in 12") D4) (caused by water)
Comment 1. 4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Water N Sedim N Drift D N Algal I I Iron D	DGY Hydrology I adicators (a ce Water (A Water Table ation (A3) (w Marks (B1) nent Deposits Deposits (B3) Mat or Crust aposits (B5)	Indicators (check or any one indicator is a 1) (A2) (w/in 12") w/in 12") is (B2) )	Sufficient  N Sur  N Inu  N Spa  N Mai  N Hyd  N Dry  Oth	face Soil Cracks (Bit ndation Visible on Al arsely Vegetated Co rl Deposits (B15) irogen Sulfide Odor Season Water Tabl	i) erial Imag ncave Su (C1) (w/ii	gery (B7) Irface (B8		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (Bional Leaves (B10) otheres on Leaduced Ironal Color characteristics (C5) essed Plant (D3) perch H2O hic Relief (Iest (D5)	ey) Living Roots (C3) (within 12") n (C4) nange w/in 12") ts (D1) o w/in 12")
Comment 1.4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Sedim N Drift D N Algai I I fron Do	DGY Hydrology I adicators (a ce Water (A Water Table ation (A3) (w Marks (B1) nent Deposits Deposits (B3) Mat or Crust aposits (B5)	Indicators (check or any one indicator is a 1) (A2) (w/in 12") w/in 12") is (B2) ) I (B4)	Sufficient  N Sur  N Inu  N Spa  N Mai  N Hyd  N Dry  Oth	face Soil Cracks (Bit ndation Visible on An arsely Vegetated Con il Deposits (B15) irogen Sulfide Odor Season Water Tabl er (explain)	erial Imag ncave Su (C1) (w/ii e (C2) (w	gery (B7) Irface (B8 n 12") I/in 24")		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (Bional Leaves (B10) otheres on Leaduced Ironal Color characteristics (C5) essed Plant (D3) perch H2O hic Relief (Iest (D5)	eiving Roots (C3) (within 12") in (C4) nange w/in 12") its (D1) is (D1) iv/in 12") iv/in 12")
Comment 1. 4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Water N Sedim N Drift D N Algal II I fron Do iield Obse	DGY Hydrology I adicators (a ce Water (A Water Table ation (A3) (w Marks (B1) nent Deposits (B3) Mat or Crust aposits (B5)	Indicators (check or any one indicator is a 1) (A2) (w/in 12") w/in 12") is (B2) ) it (B4)	Sufficient  N Sur  N Inu  N Spa  N Mai  N Dry  Oth	face Soil Cracks (Bit ndation Visible on Al arsely Vegetated Co rl Deposits (B15) irogen Sulfide Odor Season Water Tabl	erial Imagencave Su (C1) (w/ii (C2) (w	gery (B7) Irface (B8 n 12") I/in 24")		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (Bional Leaves (B10) otheres on Leaduced Ironal Color characteristics (C5) essed Plant (D3) perch H2O hic Relief (Iest (D5)	eiving Roots (C3) (within 12") in (C4) hange w/in 12") is (D1) is (D1) w/in 12") D4) (caused by water)
Comment 1. 4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Water N Sedim N Drift D N Algal II I fron Do iield Obse	DGY Hydrology I Idicators (i Ce Water (A Water Table ation (A3) (w Marks (B1) Deposits (B3) Mat or Crust Deposits (B5) Dervations (in. ater Present	Indicators (check or any one indicator is:  1)  (A2) (w/in 12")  (is (B2)  )  I (B4)  from ground surface  Yes Yes	Sufficient  N Sur  N Inu  N Spa  N Mai  N Dry  Oth	face Soil Cracks (Bondation Visible on Anarsely Vegetated Condition Deposits (B15) irogen Sulfide Odor-Season Water Tabler (explain)	c) prial Image process (C1) (w/ii price (C2) (w  r (in.)	gery (B7) Inface (B8 In 12") I/in 24")		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (Bional Leaves (B10) otheres on Leaduced Ironal Color characteristics (C5) essed Plant (D3) perch H2O hic Relief (Iest (D5)	eiving Roots (C3) (within 12") in (C4) hange w/in 12") is (D1) is (D1) w/in 12") D4) (caused by water)
Comment 1. 4 - 6 " 2. 3.  YDROLO Wetland I Primary In N Surfac N High V N Satura N Water N Sedim N Drift D N Algal II I fron Do iield Obse	DGY Hydrology I adicators (i ce Water (A Water Table ation (A3) (w Marks (B1) nent Deposits (B3) Mat or Crust eposits (B5) ervations (in. ater Present?	Indicators (check or any one indicator is:  1)  (A2) (w/in 12")  (is (B2)  )  I (B4)  from ground surface  Yes Yes	Sufficient  N Sur  N Inu  N Spa  N Mai  N Dry  Oth	face Soil Cracks (Be ndation Visible on Ar arsely Vegetated Co if Deposits (B15) irogen Sulfide Odor -Season Water Table er (explain)	ci) crial Image crial Image crial (C1) (w/ii crial (C2) (w crial (C2) (w crial (C2) (m	gery (B7) Irface (B8 n 12") I/in 24")		ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of Ri (pos. σ,σ or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita w/in 24*, can dicrotopograp AC Neutral Ti	Leaves (B10) oheres on Leduced Iron (C5) essed Plant (D3) perch H2O hic Relief (I est (D5) dominants	elving Roots (C3) (within 12") in (C4) hange w/in 12") is (D1) is w/in 12") D4) (caused by water)  # FACU+UPL dominants)
Comment 1.4-6" 2.3.  YDROLO Wetland I Primary In N Surfac N High V N Sedim N Drift D N Algai I I iron De Surface Wa Vater Table saturation Includes ca	DGY Hydrology I adicators (i ce Water (A Water Table ation (A3) (w Marks (B1) hent Deposits (B3) Mat or Crust aposits (B5) ervations (in. ater Present? Present? apillary fring	Indicators (check or any one indicator is:  1)  (A2) (w/in 12")  (S (B2)  (B4)  from ground surface  Yes  Yes  Seepin Yes  (P)	Sufficient  N Sur  N Inu  N Spa  N Mai  N Dry  Oth  Oth  No  g in at thi  No	face Soil Cracks (Bondation Visible on Anarsely Vegetated Condition Deposits (B15) irrogen Sulfide Odor-Season Water Table or (explain)  Depth of wate Depth to wate at depth but not yet to be Endo	ci)  arial Image arial Image arial Image (C1) (W/iii  arial (C2) (W  arial (in.)  iiiled?:  iin.)  Unknown	gery (B7) Inface (B8 In 12") Infin 24")	N N D S S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of R (pos. a,a or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita (w/in 24", can flicrotopograp AC Neutral T (# OBL+FACW	Leaves (B10) oheres on Leduced Iron (C5) essed Plant (D3) perch H2O hic Relief (I est (D5) dominants	elving Roots (C3) (within 12") in (C4) hange w/in 12") is (D1) is w/in 12") D4) (caused by water)  # FACU+UPL dominants)
Comment 1.4-6" 2.3.  YDROLO Wetland I Primary In N Surfac N High V N Sedim N Drift D N Algai I I iron De Surface Wa Vater Table saturation Includes ca	DGY Hydrology I adicators (i ce Water (A Water Table ation (A3) (w Marks (B1) hent Deposits (B3) Mat or Crust aposits (B5) ervations (in. ater Present? Present? apillary fring	Indicators (check or any one indicator is:  1)  (A2) (w/in 12")  (S (B2)  (B4)  from ground surface  Yes  Yes  Seepin Yes  (P)	Sufficient  N Sur  N Inu  N Spa  N Mai  N Dry  Oth  Oth  No  g in at thi  No	face Soil Cracks (Bendation Visible on Arasely Vegetated Condition Deposits (B15) irrogen Sulfide Odor-Season Water Tabler (expiain)  Depth of water Depth to water Depth to sat. (	ci)  arial Image arial Image arial Image (C1) (W/iii  arial (C2) (W  arial (in.)  iiiled?:  iin.)  Unknown	gery (B7) Inface (B8 In 12") Infin 24")	N N D S S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizosp Presence of R (pos. a,a or s Salt Deposits ( Stunted or Stre Seomorphic P Shallow Aquita (w/in 24", can flicrotopograp AC Neutral T (# OBL+FACW	Leaves (B10) oheres on Leduced Iron (C5) essed Plant (D3) perch H2O hic Relief (I est (D5) dominants	elving Roots (C3) (within 12") in (C4) hange w/in 12") is (D1) is w/in 12") D4) (caused by water)  # FACU+UPL dominants)





Site 100: Soil, July 19, 2017



Site 100: Soil, July 19, 2017





Site 100: Vegetation, looking north on July 19, 2017



Site 100: Vegetation, looking east on July 19, 2017

pplicant/Owner: Constantic	Borough	- white distriction			119-2017 Point#: 113
vestigator(s): day soull can air	washe me)	Sieme L	IDB Alaska Jan		-oint#: 112
	. 28781 ±				/
bregion (circle one): SE Southcentral Wes					
cal relief: Shape across slope: linear / convex					
oto nos /descriptions: 343/44=501L; 34				evel 4 or othe	0 1
e climatic / hydrologic conditions on the site ty				/	HGM type: 513
e Vegetation V, Soil N, or Hydrology				Yes V No _	
Vegetation N, Soil N, or Hydrology N	_ naturally problematic	7 If needed, explain	answers here.		
JMMARY OF FINDINGS	A1-				
lydrophytic Vegetation Present? Yes	No	Is the sampled are	a		
lydric Soil Present? Yes	No	within a wetland?		1100	
/etland Hydrology Present? Yes V	No		Remarks (e.g., m		
GETATION (Use scientific names.) Estimate	absolute % cover (no	relative cover). % car			status.
ree Stratum (dbh≥ 3")			Dominance Test w	orksheet:	
Species Cov.% Dom? Ind.	pecies Cov	% Dom? Ind.	Number of Domina		2 "
<u> </u>			That are OBL, FAC	W, or FAC:	(A
6.			Total Number of Do		
			Species Across All	Strata:	<u>3</u> (B
8.			Percent of Dominar	t Species	
Total Tree Cov	ar. <u>p</u>		That are OBL, FAC	W, or FAC:	66.7% (AVE
0% of total cover:	20% of total cove	r:	Prevalence Index	worksheet:	
apling/Shrub Stratum (woody plants < 3" dbh)			Total % Co	ver of:	Multiply by:
Abs.Cov.% Dom? Ind.	Abs.Co	v.% Dom? Ind.	OBL species	8	X1= 8
Alous Sin 10 Y FAC 7.			FACW species	_	X2=
9.			FAC species	85	x3= 255
			FACU species	36	X4= 140
11			UPL + NL species		X5=
12				12B (A)	403 (B)
Total Sapling/Shrub Cov	or: 25				
50% of total cover: 12.5	20% of total cove	5	Prevalence Inde	ex = R/A =	3.15
orb Stratum			T TOVAIGNOO IN O		
Abs.Cov.% Dom? Ind.		.% Dom? Ind.	Helica III		
Army fil-ferm 60 Y FAC 12.			Hydrophytic Vege	ation Indicat	ors:
17+, dio. 15 PACU 13.	TAN TOTAL				
Strop amp 5 PACH 14.			N Prevalence		
my flov 8 08/ 16.	Maria de la companya della companya della companya della companya de la companya della companya		757/82		
					s <sup>1</sup> (Provide supporting separate sheet)
18.	=======================================				
			Problematic	Hydrophytic \	egetation <sup>1</sup> (Explain)
20					
21					and hydrology must
			be present unless d	isturbed or pr	oblematic.
Total Herb Cove	r. 103				
	_ 20% of total cove	r. 20.6	Hydrophytic	1	
cular 1/10-ac plot or other plot dimension			Vegetation	Yes V	No
Cover of Wetland Bryophytes 40 (where applicable)			Present?		

I LAWS SAAALINGOIT IDOGCIDO IO DIO GODGI 1100	ded to document the indicator or confirm t	he absence of Indic	ators)	Sampling Point #: 1/3
Depth Horizon Soil Matrix	Redox Features	or nide		
(in.) (opt.) Color (moist) %		Loo <sup>2</sup> Testure	a,a dip. (pos/	Remarks
	Color (moist) % Type¹	Loc <sup>2</sup> Texture	neg)	for use comment number
0-20+ Qa				
			-	
			_	
Trans 0 - Consentation De Destation District		2		
Type: C = Concentration, D = Depletion, RM = F				= Root Channel, M = Mat
Hydric Soll Indicators (check ones that apply, n			d):	
Standard Indicators:	Indicators for Problematic Hydr	The state of the s		
Histosol or Histel (A1) (≥16"organic surface, sat'd during wet period of growing season)	N Alaska Color Change (TA4			of hydrophytic vegetation.
N Histic Epipedon (A2) (8-16" organics, sat'd,				dicator of wetland I an appropriate landscape
undertain by mineral soil with chroma ≤2)	N Alaska Alpine Swales (TA5)	P	osition must l	pe present unless disturbe
Hydrogen Sulfide (A4) (within 12 of ground	N Alaska Redox with 2.5Y Hue	4	r problematic Give details o	f color change in Remarks
surface; @" in this pit			OTTO GOLDING G	Color change in Ramarks
N Thick Dark Surface (A12)	N Alaska Gleyed without Hue Underlying Layer	by or Reager		
N Alaska Gleyed (A13)	Other (e.g., see p.91 of 2007			
N, Alaska Redox (A14)	Supplement; explain in Remai	rks)		
N Alaska Gleyed Pores (A15)				
Restrictive Layer (if present)	Drainage Class: VPD			1
Type: NONE		Hydric Soll Pr	esent?	Yes V No
Type: NONE Depth (inches) Comments:	Soil Map Unit Name:	Hydric Soll Pr	esent?	Yes V No
Type: None Depth (inches)  Comments: 1. 2. 3.  YDROLOGY  Wetland Hydrology indicators (check ones that inches)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Y Saturation (A3) (w/in 12")  Water Marks (B1)  V Sediment Deposits (B2)  I Drift Deposits (B3)	Soil Map Unit Name:	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B: attems (B10) _ ospheres on L Reduced Iron or soil color ch s (C5) atressed Plant Position (D2) attend (D3) an perch H2O aphic Relief (I	2 are required) 9) Iving Roots (C3) (within 12" n (C4) nange w/in 12") s (D1) w/in 12") D4) (caused by water)
Type: None Depth (inches)  Comments: 1. 2. 3.  YDROLOGY  Wetland Hydrology Indicators (check ones that is primary Indicators (any one indicator is sufficient y Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Y Saturation (A3) (w/in 12")  N Sp  Water Marks (B1)  N Mater Marks (B1)  V Sediment Deposits (B2)  Drift Deposits (B3)  N Drift Algal Mat or Crust (B4)  Iron Deposits (B5)	apply, measure from soil surface):  i) rface Soil Cracks (B6) undation Visible on Aerial Imagery (B7) arsely Vegetated Concave Surface (B8) or Deposits (B15) drogen Sulfide Odor (C1) (w/in 12") y-Season Water Table (C2) (w/in 24")	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B: attems (B10) _ ospheres on L Reduced Iron or soil color ch s (C5) atressed Plant Position (D2) attend (D3) an perch H2O aphic Relief (I	2 are required) 9) living Roots (C3) (within 12* n (C4) nange w/in 12*) s (D1) w/in 12*)
Type: None Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Netland Hydrology indicators (check ones that exprimery Indicators (any one indicator is sufficiently Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Y Saturation (A3) (w/in 12")  Y Sediment Deposits (B1)  Y Sediment Deposits (B2)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Ideld Observations (in. from ground surface):	Soil Map Unit Name:  apply, measure from soil surface):  if area Soil Cracks (B6) andation Visible on Aerial Imagery (B7) arsely Vegetated Concave Surface (B8) and Deposits (B15) drogen Sulfide Odor (C1) (w/in 12") y-Season Water Table (C2) (w/in 24") her (explain)	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B: attems (B10) _ ospheres on L Reduced Iron or soil color ch s (C5) atressed Plant Position (D2) attend (D3) an perch H2O aphic Relief (I	2 are required) 9) Iving Roots (C3) (within 12* n (C4) nange w/in 12*) s (D1) w/in 12*) 04) (caused by water)
Type: None Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Wetland Hydrology Indicators (check ones that the primary Indicators (any one indicator is sufficiently Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Y Saturation (A3) (w/in 12")  Water Marks (B1)  V Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  ield Observations (in. from ground surface):  urface Water Present?  Yes  No	apply, measure from soil surface):  inface Soil Cracks (B6) Indation Visible on Aerial Imagery (B7) arsely Vegetated Concave Surface (B8) Ind Deposits (B15) drogen Sulfide Odor (C1) (w/in 12") y-Season Water Table (C2) (w/in 24") her (explain)	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B: attems (B10) _ ospheres on L Reduced Iron or soil color ch s (C5) atressed Plant Position (D2) attend (D3) an perch H2O aphic Relief (I	2 are required) 9) Iving Roots (C3) (within 12* n (C4) nange w/in 12*) s (D1) w/in 12*) 04) (caused by water)
Type: NoNe Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Wetland Hydrology Indicators (check ones that any one indicator is sufficiently and any one indicator is sufficiently any one indicator is suffici	Soil Map Unit Name:  apply, measure from soil surface):  i)  rface Soil Cracks (B6)  undation Visible on Aerial Imagery (B7)  arsely Vegetated Concave Surface (B8)  unit Deposits (B15)  drogen Sulfide Odor (C1) (w/in 12")  y-Season Water Table (C2) (w/in 24")  ner (explain)  Depth of water (in.)	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B: attems (B10) _ ospheres on L Reduced Iron or soil color ch s (C5) atressed Plant Position (D2) attend (D3) an perch H2O aphic Relief (I	2 are required) 9) Iving Roots (C3) (within 12'n (C4) Is (D1) Ivin 12") 04) (caused by water)
Type: NoNe Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Netland Hydrology indicators (check ones that inches)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Y Saturation (A3) (w/in 12")  Y Saturation (A3) (w/in 12")  Y Sediment Deposits (B2)  Y Hy  Y Sediment Deposits (B2)  Y Hy  I Drift Deposits (B3)  Algal Mat or Crust (B4)  I Iron Deposits (B5)  I leld Observations (in. from ground surface):  I urface Water Present?  Yes No Seeping in at the	Soil Map Unit Name:  apply, measure from soil surface):  if arface Soil Cracks (B6)  andation Visible on Aerial Imagery (B7)  arsely Vegetated Concave Surface (B8)  in Deposits (B15)  drogen Sulfide Odor (C1) (w/in 12")  y-Season Water Table (C2) (w/in 24")  her (explain)  Depth of water (in.)	Secondary Indicate  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a c  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24", ca  MIcrotopogn  (i/i)  FAC Neutral  (# OBL+FAC	ators (at least ed Leaves (B atterns (B10) espheres on L Reduced Iron or soil color ch s (C5) tressed Plant Position (D2) an perch H2O aphic Retief (I Test (D5) CW dominants	2 are required) 9) Iving Roots (C3) (within 12'n (C4) nange w/in 12") S (D1) W/in 12") D4) (caused by water) > #FACU+UPL dominants)
Type: No No Depth (inches)	Soil Map Unit Name:  apply, measure from soil surface):  inface Soil Cracks (B6) Indation Visible on Aerial Imagery (B7) Indation Visible on Aerial Imagery (B7) Indation Visible on Aerial Imagery (B8) Indicated Concave Surface (B8) Indicated Concav	Secondary Indice  Water-Stain  Y Drainage Pa  N Oxid'd Rhizo  N Presence of  (pos. a,a o  Salt Deposit  N Stunted or S  N Geomorphic  Shallow Aqu  (w/in 24°, ca  MIcrotopogn  N-FAC Neutral	ators (at least ed Leaves (B atterns (B10) espheres on L Reduced Iron or soil color ch s (C5) tressed Plant Position (D2) an perch H2O aphic Retief (I Test (D5) CW dominants	2 are required) 9) Iving Roots (C3) (within 12'n (C4) nange w/in 12") S (D1) W/in 12") D4) (caused by water) > #FACU+UPL dominants)
Type: No C Depth (inches)	Soil Map Unit Name:  apply, measure from soil surface):  inface Soil Cracks (B6) Indation Visible on Aerial Imagery (B7) Indation Visible Odor (C1) (w/in 12") Indicate Capacity (Inc.)  Depth of water (In.)  Depth of water (In.)  Depth to water (In.)  Depth to sat. (In.)  Epil Endo Unknown	Secondary Indicate  Water-Stain  Y Drainage Pa  N Oxid'd Rhize  N Presence of  (pos. q,q c  Salt Deposit  N Stunted or S  Geomorphic  Shallow Aqu  (w/in 24*, ca  Microtopogn  (A) FAC Neutral  (# OBL+FAC	ators (at least ed Leaves (B atterns (B10) espheres on L Reduced Iron or soil color ch s (C5) tressed Plant Position (D2) an perch H2O aphic Retief (I Test (D5) CW dominants	2 are required) 9) Iving Roots (C3) (within 12'n (C4) nange w/in 12") S (D1) W/in 12") D4) (caused by water) > #FACU+UPL dominants)
Type: No C Depth (inches)	Soil Map Unit Name:  apply, measure from soil surface):  inface Soil Cracks (B6) Indation Visible on Aerial Imagery (B7) Indation Visible Odor (C1) (w/in 12") Indicate Capacity (Inc.)  Depth of water (In.)  Depth of water (In.)  Depth to water (In.)  Depth to sat. (In.)  Epil Endo Unknown	Secondary Indicate  Water-Stain  Y Drainage Pa  N Oxid'd Rhize  N Presence of  (pos. q,q c  Salt Deposit  N Stunted or S  Geomorphic  Shallow Aqu  (w/in 24*, ca  Microtopogn  (A) FAC Neutral  (# OBL+FAC	ators (at least ed Leaves (B atterns (B10) espheres on L Reduced Iron or soil color ch s (C5) tressed Plant Position (D2) an perch H2O aphic Retief (I Test (D5) CW dominants	2 are required) 9) living Roots (C3) (within 12* n (C4) nange w/in 12*) s (D1) w/in 12*) D4) (caused by water) > #FACU+UPL dominants)





Site 113: Soil, July 19, 2017



Site 113: Soil, July 19, 2017





Site 113: Vegetation, looking east on July 19, 2017



Site 113: Vegetation, looking south on July 19, 2017

Project: Palmer VMS Borough/City: JNU Hain	Date: 7:19.2017
Applicant/Owner: Constantine	Sampling Point #: 1/4
Investigator(s): dong favell, cam currentum Firm:	IDR Alaska Inc.
Lat. (dec.°) 59.41665 Long. 136.28784 ± 'NAD 83 Recorded of	on GPS #: Marked on map? Field Map #:
Subregion (circle one): (SE) Southcentral Western Aleutian Interior Northern Landfo	Slope (%): > Aspect N
Local relief: Shape across slope: linear convext concave Shape up/downslope: (near)	
Photo nos./descriptions: 344/50 SolL; 351-354 NESW Camera #: MAS	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: / No:	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circu	
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain	answers here.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present?  Yes  No ls the sampled are within a wetland?	? Yes <u>X</u> No
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % ca	n total >100%. Use 2012 indicator status.
	Dominance Test worksheet:
Tree Stratum (dbh≥ 3") Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
1. Ataus 511 40 5	That are OBL, FACW, or FAC: 2 (A)
2	Total Number of Dominant
3	Species Across All Strata: 2 (B)
4 8	Percent of Dominant Species
Total Tree Cover:	That are OBL, FACW, or FAC: 100% (A/B)
50% of total cover: 20% of total cover:	Prevalence Index worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	OBL species X1=
1. Alans Sin 90 Y FAC 7	FACW species X2=
2	FAC species 183 X3= 549
4	FACU species 2 X4= 8
5	UPL + NL species X5=
6 12	Column Totals: 185 (A) 557 (B)
Total Sapling/Shrub Cover:	\\\\\_\\\\\_\_\_\_\_
50% of total cover: 45 20% of total cover: 18	Prevalence Index = B/A = 3.01
Herb Stratum	
Abs. Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
1. Athy Fil-ferm 90 Y MC 12.	Hydrophytic Vegetation Indicators:
2. Street and 2 FACY 13.  3. Equi aiv 3 FAC 14.	Y Dominance Test is>50%
4. Urt. do T PACU 15	N Prevalence Index is ≤3.0
516	Morphological Adaptations (Provide supporting
6 17	data in Remarks or on a separate sheet)
7 18	Problematic Hydrophytic Vegetation (Explain)
8 19	- I I I I I I I I I I I I I I I I I I I
9 20	1
10 21 22.	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Herb Cover: 95	
	In the state of th
50% of total cover: 47,5 20% of total cover: 19	Hydrophytic Vegetation Yes No
Circular 1/10-ac plot vor other plot dimension: % of bare ground: 5%  **Cover of Wetland Bryophytes % Total Cover of Bryophytes %  (where applicable)	Present?
Remarks: We are on a small micro high blum 2 low arece (swallow)	

	(	abin naadad	to document the i	Natcarol	or continu	the abse	ence of indicate	ors)	
Depth Horizon	Soil Matrix		Re	dox Fea	tures			a,a dip.	
(in.) (opt.)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc2	Texture	(pos/	Remarks
3-20 Da				Ī			H.L.L.A.	neg)	(or use comment number
				_					
				_					
			A. T.	_					
				_					
				_		_	V-		
				_				_	
Type: C = Concentra	tion D = Depletion	PM = Pedu	red Matrix CS-1	Costed S	Sand Grain	s <sup>2</sup> l conti	on: DI = Born	Lining PC	= Root Channel, M = Mar
									- Root Channel, M = Ma
Hydric Soll Indicators Standard Indicators:	s (check ones that	ı appıy, meas						:	
. /	! (A1) (≥16*organic	as selection as	Indicators fo					se indicator	of hydrophytic vegetation
sat'd during we	t period of growing se	sunace, 9850n)	N Alaska	Color Ch	iange <sup>4</sup> (TA	4)			dicator of wetland
N Histic Epipedon (	(A2) (8-16" organics	s, sat'd,	N Alaska	Alpine S	wales (TA:	5)	hyd	Irology, and	l an appropriate landscap De present unless disturbe
V/	ineral soil with chroma (A4) (within 12"of				(	,	ori	problematic	
surface; @	in this pit	Broaun	Alaska	Redox w	rith 2.5Y H	ue	fGi	ve details o	f color change in Remarks
N Thick Dark Surfa	ce (A12)			Gleyed v	without Hue	5Y or R	ledder		
N Alaska Gleyed (A	(13)		N Other (e						
N Alaska Redox (A	14)				plain in Rem	arks)			
N Alaska Gleyed Po	ores (A15)							100	
Restrictive Layer (if pre	esent)		Drainage Clas	ss: V	D				1
Type: hm	L		Call Man Link	**		1100	4-1- 0-11 0	40	Yes No
Depth (inches)			Soil Map Unit	Name:		пу	dric Soil Pres	entr	163110
			Soil Map Unit	Name:		Пу	anc Soli Pres	entr	NO
Depth (inches) Comments:			Soil Map Unit	Name:		Пу	anc son Pres	entr	
Depth (inches) Comments:			Soli Map Unit	Name:		Пу	anc son Pres	entr	TO NO
Depth (inches) Comments:  /DROLOGY		nes that ann	-		urface):				
Depth (inches) Comments:  /DROLOGY Vetiand Hydrology in	dicators (check or		-		ırface):	Sec	ondary Indicate	ors (at least	2 are required)
Depth (inches) Comments:  /DROLOGY Vetiand Hydrology in	dicators (check or	sufficient)	y, measure from	n soil su	uface):	Sec N	ondary Indicate Water-Stained	ors (at least	2 are required)
Depth (inches) Comments:  /DROLOGY Vetiand Hydrology in	dicators (check or ny one indicator is	sufficient) N Surfac	-	n soil su		Sec N N	ondary Indicati Water-Stained Drainage Patt	ors (at least Leaves (B erns (B10)	2 are required)
Depth (inches) — Comments:  (DROLOGY Vetland Hydrology Informary Indicators (ar  Surface Water (A1)	dicators (check or ny one indicator is : ) (A2) (w/in 12")	sufficient)  N Surfac N Inunda	ly, measure from	n soll su 3) erial Ima	ngery (B7)	5ec N 17 17 17	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R	ors (at least Leaves (B erns (B10) pheres on L educed Iroi	2 are required) 9) .iving Roots (C3) (within 12
Depth (inches) — Comments:  (DROLOGY  Vetland Hydrology In Primary Indicators (ar  Surface Water (A1) High Water Table ( Y Saturation (A3) (w/	dicators (check or ny one indicator is : ) (A2) (w/in 12")	N Surface N Inunda N Sparse	ly, measure from e Soil Cracks (Bo ation Visible on A	n soll su 3) erial Ima	ngery (B7)	Sec N 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (ροs. σ,σ or	ors (at least Leaves (B erns (B10) pheres on L educed Iroi soil color ch	2 are required) 9) .iving Roots (C3) (within 12
Depth (inches) — Comments:	dicators (check or ny one indicator is ) A2) (w/in 12") in 12")	sufficient)  N Surfac N Inunda N Sparse N Marl D	ly, measure from se Soil Cracks (Bo ation Visible on A	soil su 6) erial Ima ncave S	egery (B7) urface (B8	500 N 1 2 2 3 2 3 2 3 3 2 3 3 3 3 3 3 3 3 3 3	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R	ors (at least Leaves (B: erns (B10) pheres on L educed Iroi soil color ch (C5)	2 are required) 9) Living Roots (C3) (within 12 in (C4) nange w/in 12")
Depth (inches) Comments: 3.  YDROLOGY Vetiand Hydrology in Primary Indicators (at Management of the Comment of the C	dicators (check or ny one indicator is ) A2) (w/in 12") in 12")	sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog	ly, measure from the Soil Cracks (Botation Visible on Araby Vegetated Coreposits (B15)	a soll su 6) erial Ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	500 7 7 7 7 7 7 7 7 7	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. a,a or Salt Deposits	ors (at least Leaves (Bi erns (B10) pheres on L educed Iroi soil color ch (C5) essed Plani	2 are required) 9) .iving Roots (C3) (within 12 n (C4) nange w/in 12*)
Depth (inches) — Comments:  Depth (inches) — Comments:  Primary Indicators (all y Surface Water (A1) y High Water Table (Y Saturation (A3) (w/ Water Marks (B1) Sediment Deposits (B3)	dicators (check or ny one indicator is ) (A2) (w/in 12") in 12")	Sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog N Dry-Se	ly, measure from the Soil Cracks (Botton Visible on Arely Vegetated Co- eposits (B15) gen Sulfide Odor- seson Water Table	a soll su 6) erial Ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	500 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquite	ors (at least Leaves (Bi erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3)	2 are required) 9) .iving Roots (C3) (within 12 n (C4) nange w/in 12*) is (D1)
Depth (inches)	dicators (check or ny one indicator is ) (A2) (w/in 12") in 12")	sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog	ly, measure from the Soil Cracks (Botton Visible on Artely Vegetated Coreposits (B15) gen Sulfide Odorseson Water Table	a soll su 6) erial Ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	200   SE	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can	pors (at least Leaves (B: ems (B10)) pheres on L educed Iroi soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O	2 are required) 9) iving Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) ) w/in 12")
Depth (inches) — Comments:  Depth (inches) — Comments:  Primary Indicators (all y Surface Water (A1) y High Water Table (Y Saturation (A3) (w/ Water Marks (B1) Sediment Deposits (B3)	dicators (check or ny one indicator is ) (A2) (w/in 12") in 12")	Sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog N Dry-Se	ly, measure from the Soil Cracks (Botton Visible on Artely Vegetated Coreposits (B15) gen Sulfide Odorseson Water Table	a soll su 6) erial Ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	2 K K K K K K K K K K K K K K K K K K K	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can	pors (at least Leaves (B: ems (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I	2 are required) 9) .iving Roots (C3) (within 12 n (C4) nange w/in 12*) is (D1)
Depth (inches)	dicators (check or ny one indicator is: ) (A2) (w/in 12") in 12") (B2)	sufficient)  N Surface N Inunda N Sparse N Marl D Y Hydrog N Dry-Se	ly, measure from the Soil Cracks (Botton Visible on Artely Vegetated Coreposits (B15) gen Sulfide Odorseson Water Table	a soll su 6) erial Ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	2 K K K K K K K K K K K K K K K K K K K	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp	pors (at least Leaves (Bi erns (B10)) pheres on L educed Iron soil color ch (C5) essed Plant dosition (D2) and (D3) perch H2O thic Relief (I est (D5)	2 are required) 9) iving Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) ) w/in 12")
Depth (inches)	dicators (check or ny one indicator is: ) (A2) (w/in 12") in 12") (B2) (B4)	Sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Botton Visible on Arealy Vegetated Coreposits (B15) the Sulfide Odor the S	a soil su 6) erial ima ncave S (C1) (w/	agery (B7) urface (B8 'in 12")	2 K K K K K K K K K K K K K K K K K K K	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp	pors (at least Leaves (Bi erns (B10)) pheres on L educed Iron soil color ch (C5) essed Plant dosition (D2) and (D3) perch H2O thic Relief (I est (D5)	2 are required) 9) iving Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)	dicators (check or my one indicator is ) (A2) (w/in 12") in 12") (B2) (B4)	Sufficient)  N Surface N Inunda N Sparse N Marl D Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Bitation Visible on Article) the Vegetated Coreposits (B15) the Sulfide Odor the Sulfide Od	soil su sial ima ncave S (C1) (w/	egery (B7) urface (B8 in 12") w/in 24")	2 K K K K K K K K K K K K K K K K K K K	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp	pors (at least Leaves (Bi erns (B10)) pheres on L educed Iron soil color ch (C5) essed Plant dosition (D2) and (D3) perch H2O thic Relief (I est (D5)	2 are required) 9) iving Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)	dicators (check or my one indicator is: ) (A2) (w/in 12") in 12") (B2) (B4) from ground surface Yes Yes	Sufficient)  N Surface N Inunda N Sparse N Marl D Y Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Beation Visible on Arealy Vegetated Coreposits (B15) gen Sulfide Odor the Son Water Table (explain)  Depth of water Depth to water	a soil su erial ima ncave S (C1) (w/ ie (C2) (r	agery (B7) urface (B8 in 12") w/in 24")	2 K K K K K K K K K K K K K K K K K K K	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp	pors (at least Leaves (Bi erns (B10)) pheres on L educed Iron soil color ch (C5) essed Plant dosition (D2) and (D3) perch H2O thic Relief (I est (D5)	2 are required) 9) iving Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)	dicators (check or ny one indicator is: ) (A2) (w/in 12") in 12") (B2) (B4) from ground surface Yes Yes	Sufficient)  N Surfac N Inunda N Sparse N Marl D Y Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Bettion Visible on Article Vegetated Collegen Sulfide Odor teson Water Table (explain)  Depth of water Depth to water	r (in.)	urface (B8 in 12") w/in 24")	25 Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. a,a or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at least Leaves (Bi ems (B10)) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I est (D5) V dominants	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12*) bs (D1) 0 w/in 12*) D4) (caused by water) > # FACU+UPL dominants)
Depth (inches) — Comments:   YDROLOGY  Vetiand Hydrology in Primary Indicators (all Y Surface Water (A1) Y High Water Table ( Y Saturation (A3) (w/ Y Water Marks (B1) J Sediment Deposits (B3) J Algal Mat or Crust ( Y Iron Deposits (B5)  ield Observations (in. fourface Water Present? Vater Table Present?	dicators (check or my one indicator is in indicator is indicator in indicator	Sufficient)  N Surface N Inunda N Sparse N Marl D Y Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Botton Visible on Article) the Soil Cracks (Botton Visible on Article) the Soil Cracks (Botton Art	r (in.)	egery (B7) urface (B8 in 12") w/in 24")	25 Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp	prs (at least Leaves (Bi ems (B10)) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I est (D5) V dominants	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water) > #FACU+UPL dominants)
Depth (inches) — Comments:   YDROLOGY  Vetiand Hydrology in Primary Indicators (all Y Surface Water (A1) Y High Water Table ( Y Saturation (A3) (w/ Water Marks (B1) J Sediment Deposits (B3) J Algal Mat or Crust ( Y Iron Deposits (B5)  ield Observations (in. fourface Water Present? Vater Table Present?  acturation Present?  includes capillary fringe	dicators (check or my one indicator is: ) (A2) (w/in 12") in 12") (B2) (B4) from ground surfact Yes Yes Yes Seepin Yes ()	Sufficient)  N Surface N Inunda N Sparse N Marl D Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Bitter Visible on Allely Vegetated College Sulfide Odor the Soil Carlot (explain)  Depth of water Depth to water Depth to sat. (Epi Endo	r (in.)	egery (B7) urface (B8) in 12") w/in 24")	500 22 22 22 22 22 22 22 22 22 22 22 22 2	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at least Leaves (Bi ems (B10)) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I est (D5) V dominants	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12*) bs (D1) 0 w/in 12*) D4) (caused by water) > # FACU+UPL dominants)
Depth (inches) — Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Packet (A1)  Comment Packet (A2)  Comment Packet (A3)  Comment Packet (A3)  Comment Packet (B4)  Comment Packet (B4)  Comment Packet (B5)  Comments:  C	dicators (check or my one indicator is: ) (A2) (w/in 12") in 12") (B2) (B4) from ground surfact Yes Yes Yes Seepin Yes ()	Sufficient)  N Surface N Inunda N Sparse N Marl D Hydrog N Dry-Se N Other (	ly, measure from the Soil Cracks (Bitter Visible on Allely Vegetated College Sulfide Odor the Soil Carlot (explain)  Depth of water Depth to water Depth to sat. (Epi Endo	r (in.)	egery (B7) urface (B8) in 12") w/in 24")	500 22 22 22 22 22 22 22 22 22 22 22 22 2	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. α,α or Salt Deposits Stunted or Str Geomorphic F Shallow Aquitt (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at least Leaves (Bi ems (B10)) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I est (D5) V dominants	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12*) bs (D1) 0 w/in 12*) D4) (caused by water) > # FACU+UPL dominants)





Site 114: Soil, July 19, 2017



Site 114: Soil, July 19, 2017





Site 114: Vegetation, looking north on July 19, 2017



Site 114: Vegetation, looking east on July 19, 2017

Investigator(s): Jewell.	Cani-lam			Firm: HI	OR Alaska, Inc.	At the state of	Point#: \\C
Lat. (dec.*) 59, 41903						rked on man?	Field Man #
Subregion (circle one): SE S							
Local relief: Shape across slop							
Photo nos./descriptions: 355	-56 (20:1) 353	-60 (N-W)	Comor	#.	Vas Time (Vieres	k Level A seeth	
Are climatic / hydrologic condit							
Are Vegetation, Soil,							
Are Vegetation $\sqrt{2}$ , Soil $\sqrt{2}$ ,						r res No_	
	or rivarologyn	aturally problematic	r ir needed,	exprain a	nswers nere.		
SUMMARY OF FINDINGS Hydrophytic Vegetation Prese	net? Von M	No					
			is the sam				
Hydric Soil Present?	Yes	No <u>×</u>	within a v	vetland?			
Wetland Hydrology Present?		No <u>×</u>			Remarks (e.g.		
VEGETATION (Use scientific	names.) Estimate al	solute % cover (not	relative cove	r). % can			status.
Tree Stratum (dbh≥ 3")				200	Dominance Test	t worksneet:	
	Dom? Ind. Spe	cies Cov	.% Dom?	Ind.	Number of Domir	nant Species	
1	5				That are OBL, FA	ACW, or FAC:	
2	6			_	Total Number of		
3				_	Species Across A	All Strata:	
4.	Total Tags Cover	-			Percent of Domir	ant Species	
	Total Tree Cover:				That are OBL, FA	ACW, or FAC:	100
50% of total cover:		20% of total cove	r:	-11	Prevalence Inde	x worksheet:	
Sapling/Shrub Stratum (wood					Total % (	Cover of:	Multiply I
Abs.Cov.% D			v.% Dom?	Ind.	OBL species		X1= -
1				-	FACW species	-	X2=
2					FAC species	45	X3= 195
3			_		FACU species		X4=
5.					UPL + NL specie		X5=
6	12				Column Totals:		195
Total 5	Sapling/Shrub Cover:				Column Totals.	(^)	1-13
					Description of the	ndex = B/A =	3
50% of total cover: Herb Stratum		20% of total cove			Prevalence ii	10ex = b/A =	
Abs.Cov.% Do	m? Ind.	Abs. Cov	.% Dom?	Ind.			
1. Cal com (0)	PAC 12.				Hydrophytic Ve	natation indicat	larene
2. Tri en -				F			1018.
3. All Cal 5				4	7 Dominanc		
				-001	_/_ Flevalenc	e index is 53.0	
5				_	Morpholog	ical Adaptation	s <sup>†</sup> (Provide supp
6,						Remarks or on a	
7					Problemat	ic Hydrophytic \	egetation¹ (Exp
9			_				
10					1 Indicators of hyd	fric soil and wet	land hydrology:
11					be present unless		
	Total Herb Cover:	(00					
50% of total cover:			12		Hydrophytic	1300	
Circular 1/10-ac plot or ot					Vegetation	Yes ×	No
% Cover of Wetland Bryophyte	es%	Total Cover of Bryon	ohytes	_%	Present?		

SOIL Profile Description: (I	Describe to the de	oth needed	to document the i	indicator	or confirm	the abse	ence of indicate	ors)	Sampling Point #: 116
	Soil Matrix			dox Feat		nia dosc			
							T	a,a dip. (pos/	Remarks
(in.) (opt.)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc2	Texture	neg)	(or use comment number)
0-2 0:									
	1/2 2/1			_			<u>Cal</u>		
5-19 13-2	5 73/2			_			4-		~ 70 % grand
				_					
				_					
				_					
<sup>1</sup> Type: C = Concentration	on, D = Depletion	, RM = Redu	iced Matrix, CS≕	Coated S	Sand Grain	s <sup>2</sup> Locati	on: PL = Pore	Lining, RC	= Root Channel, M = Matri
Hydric Soll Indicators	(check ones that	apply, mea	sure from top of	minera	l layers un	less oth	erwise noted	):	
Standard Indicators:			Indicators fo	r Proble	matic Hy	dric Soll:	s³:		
Histosol or Histel (	(A1) (≥16°organic	surface,	ມ Alaska	Color Ct	iange <sup>4</sup> (TA	A)			of hydrophytic vegetation,
sat'd during wet	period of growing se	ason)	Alaska	COIDI CI	iaiiāe (17	(4)			dicator of wetland
Histic Epipedon (A	<li>(8-16" organics eral soil with chroma</li>	i, sat'd, a <2\	✓ Alaska	Alpine S	wales (TA	5)			d an appropriate landscape be present unless disturbed
~ Hydrogen Sulfide			Al as a				or	problematic	
surface; @	" in this plt		Alaska	Redox v	ith 2.5Y H	ue	*Gi	ve details d	of color change in Remarks.
M Thick Dark Surface	e (A12)		Alaska Unde	Gleyed v		e 5Y or R	ledder		
Alaska Gleyed (A1	13)		Other (c	a.d., see s	.91 of 2007				
Alaska Redox (A1	4)		Supple	ement; ex	plain in Ren	narks)			
Alaska Gleyed Po	res (A15)								
Restrictive Layer (if pres	ent)		Drainage Cla	ss:	~O				
Type:			Soil Map Unit	Name:		Ну	dric Soil Pres	ent?	Yes No>
Depth (inches)	-								
1. 2. 3. HYDROLOGY									
Wetland Hydrology Inc			ly, measure from	n soil su	ırface):				t 2 are required)
Primary Indicators (an	y one indicator is						Water-Stainer	THE RESERVE	
✓ Surface Water (A1)			ce Soil Cracks (B			7	Drainage Patt		
High Water Table (A	\2) (w/in 12")		ation Visible on A	erial Ima	agery (B7)	7			Living Roots (C3) (within 12")
Saturation (A3) (w/ir	n 12")	Spars	ely Vegetated Co	ncave S	urface (B8	3) —	Presence of F	soil color c	n (C4) hange w/in 12")
Water Marks (B1)		Marl C	Deposits (B15)			N	Salt Deposits	(C5)	
∠ Sediment Deposits	(B2)	<u>~</u> Hydro	gen Sulfide Odor	(C1) (w	/in 12")	W	Stunted or Stu	essed Plan	its (D1)
<u>₩</u> Drift Deposits (B3)		Dry-S	eason Water Tab	le (C2) (	w/in 24")	a	Geomorphic F	Position (D2	2)
Algal Mat or Crust (	B4)	<b>∠</b> Other	(explain)			N	Shallow Aquit		
			(			N	(w/in 24", car		
Iron Deposits (B5)						<del></del>			(D4) (caused by water)
						10	FAC Neutral 1 (# OBL+FAC)		> # FACU+UPL dominants)
Field Observations (in. fi	rom ground surfac	ce):							
Surface Water Present?	Yes	No 2	Depth of water	er (in.) _					
Water Table Present?	Yes	No <u>yo</u>	Depth to water	er (in.) _					
	Seepii	ng in at that	depth but not yet	filled?:					
Saturation Present?	Yes	No 20				Wet	land Hydrolo	gy Present	7 Yes No_2
(includes capillary fringe				Unkno	wn				
Describe Recorded Data	•	monitoring w				ons), if av	railable:		
Dde-									
Remarks:									
		122							



Site 116: Soil, July 19, 2017



Site 116: Soil, July 19, 2017





Site 116: Vegetation, looking east on July 19, 2017



Site 116: Vegetation, looking south on July 19, 2017

Project Palmer VMS Borough/City: TNU/Hain	Date: 7:19
Applicant/Owner: Constantine	Sampling Point #: 117
Investigator(s): dong lovell; en cununchem Firm:	
Lat. (dec.*) 59. 41906 Long. 136. 29016 ± NAD 83 Recorded	on GPS #: Marked on map? Field Map #:
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landi	form: Depression Slope (%): Aspect:
Local relief: Shape across slope: linear / convex/ concave Shape up/downslope: linear /	
Photo nos./descriptions: 361/62 - SOIL 363 - 366 NESW Camera #: M.	S Veg Type (Viereck Level 4 or other):
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: V No:	
Are Vegetation Normal Circles Are "Normal Circles", or Hydrology Normal Circles Are "Normal Circles", Soil Normal Circles (Normal Circles)	
Are Vegetation, Soll, or Hydrology naturally problematic? If needed, explain	answers here.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes V No Is the sampled as	rea
Hydric Soil Present? Yes No Within a wetland	17 Yes No X
Wetland Hydrology Present? Yes No Y	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % co	
Tree Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species That are OBL FACW or FAC:  (A)
1.—————————————————————————————————————	That are OBL, FACW, or FAC: (A)
2 6	Total Number of Dominant Species Across All Strata:  4
4. 8.	Species Across All Strata: (B)
Total Tree Cover:	Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)
	That are OBL, FACW, or FAC: +570 (A/B) Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling/Shrub Stratum (woody plants < 3" dbh)	
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	2
1. Salie bar 10" Y FAC 7.	OBL species 3 X1= 3
2. Vile edu 8 Y FACY 8.	FACW species $\mathcal{O}(T)$ $X2 = \mathcal{O}(T)$
3 (arms \$61 15" Y FAC 8.	FAC species 110 X3= 330
4	FACU species 8 X4= 32
5 11 12 12	UPL + NL species X5= X5=
The Control of the Co	Column Totals: 118 (A) 36Z (B)
Total Sapling/Shrub Cover: 33	
50% of total cover: 6.6  Herb Stratum	Prevalence Index = B/A = 3, 07
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	
1. Athyr fil-fam 75° Y FAC 12	I had a shada wa a shada a sha
2. Cal can 8" MC 13.	Hydrophytic Vegetation Indicators:
3. <u>Stell sp</u> 14	N Dominance Test is>50% N Prevalence Index is ≤3.0
4. Par pal T	
5. Egni Flux 3 00 16. PAC 17.	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
7	
819	Problematic Hydrophytic Vegetation¹ (Explain)
9 20	
10 21	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
11	be present unless disturbed or problematic.
Total Herb Cover: 88	
50% of total cover: 44 20% of total cover: 17.6	Hydrophytic
Circular 1/10-ac plot $$ or other plot dimension: % of bare ground: % Cover of Wetland Bryophytes % Total Cover of Bryophytes % (where applicable)	Vegetation Yes No No
Remarks: www. , throp vis.	
plot limited to depression (not circular, more obly	<u>).</u>
IC 4-1: Compati Frainces	

an 44 4.5 c			to document the indicat		1 410 6030	nico oi moioate		
Depth Horizon _	Soil Matrix	<u> </u>	Redox Fe				α,α dip.	
(in.) (opt.)	Color (moist)	<u>%</u>	Color (moist) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	(pos/ neg)	Remarks (or use comment number
)-3 oi							112.03	
3-60 Oa								
-20 B 7 5	12.5/1							
41	0YR2/2		761			SiL	neg	
	/				_			
	- 31				_		_	
10				_	_			
							_	
Type: C = Concentration	n. D = Depletion	RM = Redu	ced Matrix CS=Coated	Sand Grain	e <sup>2</sup> l ocati	on: PL = Pore	Lining RC:	= Root Channel, M = Ma
lydric Soil Indicators (								- Not Chamber, M - Ma
Standard Indicators:	Check Chea dia	r appry, meas	The second secon				•	
. 1	4) 5405		Indicators for Prot				a ladiantas.	
N Histosol or Histel (A sat'd during wet po	.1) (≥16"organic eriod of drowing s	surface, eason)	N Alaska Color (	Change <sup>4</sup> (TA	14)			of hydrophytic vegetation licator of wetland
N Histic Epipedon (A2			N Alaska Alnine	Ownland CTA	-	hyc	lrology, and	an appropriate landscape
underlain by miner	ral soil with chrom	a ≤2)	N Alaska Alpine	Swales (1A	5)			e present unless disturbe
N Hydrogen Sulfide (A		ground	N Alaska Redox	with 2.5Y H	lue		problematic.	color change in Remark
surface; @	_ in this pit		V				10 0012110 01	oolor onerigo in recitiona
N Thick Dark Surface	(A12)		Alaska Gleyed Underlying		e 5Y or R	ledder		
N Alaska Gleyed (A13	a .		AV					
N Alaska Redox (A14)			Other (e.g., see Supplement; e	p.91 of 2007 explain in Ren	narks)			
N Alaska Gleyed Pore					,			
lestrictive Layer (if prese			Drainage Class: N	4 IATO				400 400
Type:				1WD		dric Soll Pres	42	Yes No V
Type. Tipes			Soil Map Unit Name	4.	LITT	utic Joi! Fres	entr	183 NO *
Depth (inches)	<u> </u>					a lingo		a knyst V a
Depth (inches) comments:	N. BILL					1000 A 23		Table Services
Depth (inches) comments:	cators (check o	nes that appl	y, measure from soil s			a IDWA kesi		2 are required)
Depth (inches) comments:  /DROLOGY /etiand Hydrology Indic			y, measure from soil s		Sec	a IDWA kesi	ors (at least	
Depth (inches)  Comments:  Commen	one indicator is	sufficient)			Sec.	ondary Indicate Water-Stained	ors (at least Leaves (BS	
Depth (inches)  Comments:  Commen	one indicator is	sufficient)  Surfac	e Soil Cracks (B6)	surface):	Sec	ondary Indicate Water-Stained Drainage Patte	ors (at least Leaves (BS erns (B10)	9)
Depth (inches)  Comments:  Commen	one indicator is	sufficient)  N Surfect Inunda	e Soil Cracks (B6) tion Visible on Aerial In	surface): nagery (B7)	Sec	ondary Indicate Water-Stained Drainage Patte	ors (at least Leaves (BS erns (B10)	iving Roots (C3) (within 12
Depth (inches) Comments:  DROLOGY Vetland Hydrology Indicting (any of Surface Water (A1)  High Water Table (A2)  Saturation (A3) (w/in	one indicator is	sufficient)  Surfect Inunda  Sparse	e Soil Cracks (B6) tion Visible on Aerial In bly Vegetated Concave	surface): nagery (B7)	Sec A N N	ondary Indicate Water-Stained Drainage Pate Oxid'd Rhizos Presence of R	ors (at least Leaves (BS erns (B10) pheres on L educed from soil color ch	iving Roots (C3) (within 12
Depth (inches) Comments:  CDROLOGY Vetland Hydrology Indictionary Indicators (any of the comment) Very Surface Water (A1) Very High Water Table (A2) Very Saturation (A3) (w/in of the comment) Water Marks (B1)	one indicator is ) (w/in 12") 12")	sufficient)  N Surfac N Inunda N Sparse N Mart D	e Soil Cracks (B6) tion Visible on Aerial In bly Vegetated Concave aposits (B15)	surface): nagery (B7) Surface (B8	Sec A N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. a,a or salt Deposits	ors (at least Leaves (BS erns (B10) _ pheres on L educed from soil color ch (C5)	iving Roots (C3) (within 12 (C4) ange w/in 12")
Depth (inches) Comments:  CDROLOGY Vetiand Hydrology Indictinary Indicators (any of the comment	one indicator is ) (w/in 12") 12")	sufficient)  N Surfect N Inunda N Sparse N Mart Do N Hydrog	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (t	surface): nagery (B7) Surface (B8 w/in 12")	Sec A N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or salt Deposits Stunted or Str	ors (al least Leaves (B9 ems (B10) cheres on L educed iron soil color ch (C5) essed Plant	o) iving Roots (C3) (within 12 I (C4) ange w/in 12*) s (D1)
Depth (inches) Comments:  CDROLOGY Vetiand Hydrology Indictions (any of the comment of the comme	one indicator is ) (w/in 12") 12")	sufficient)  N Surfect N Inunda N Sparse N Mart Do N Hydrog	e Soil Cracks (B6) tion Visible on Aerial In bly Vegetated Concave aposits (B15)	surface): nagery (B7) Surface (B8 w/in 12")	Sec A N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Pate Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str	ors (at least Leaves (BS erns (B10) _ pheres on L educed Iron soil color ch (C5) essed Plant osition (D2)	o) iving Roots (C3) (within 12 I (C4) ange w/in 12*) s (D1)
Depth (inches) Comments:  CDROLOGY Vetiand Hydrology Indicators (any of the comment of the comme	one indicator is  ) (w/in 12")  12")	Sufficient)  N Surfect N Inunda N Sparse N Mart D Hydrog N Dry-Se	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (t	surface): nagery (B7) Surface (B8 w/in 12")	Sec A N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Pate Oxid'd Rhizos Presence of R (pos. α,α or salt Deposits Stunted or Str Geomorphic P Shallow Aquite	ors (at least Leaves (BS erns (B10) _ pheres on L educed fron soil color ch (C5) essed Plant osition (D2) ard (D3)	iving Roots (C3) (within 12 (C4) ange w/in 12*) s (D1)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Indicators (any of the comment of the com	one indicator is  ) (w/in 12")  12")	Sufficient)  N Surfect N Inunda N Sparse N Mart D Hydrog N Dry-Se	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave aposits (B15) ten Sulfide Odor (C1) (t ason Water Table (C2)	surface): nagery (B7) Surface (B8 w/in 12")	\$600 \[ \lambda \] \[ \lambda	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can	ors (al least Leaves (BS erns (B10) _ pheres on L educed iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O	iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1)
Depth (inches) Comments:  CDROLOGY Vetland Hydrology Indiction V Surface Water (A1) V High Water Table (A2) V Saturation (A3) (w/in V Water Marks (B1) V Sediment Deposits (B3) V Drift Deposits (B3)	one indicator is  ) (w/in 12")  12")	Sufficient)  N Surfect N Inunda N Sparse N Mart D Hydrog N Dry-Se	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave aposits (B15) ten Sulfide Odor (C1) (t ason Water Table (C2)	surface): nagery (B7) Surface (B8 w/in 12")	\$600 \[ \lambda \] \[ \lambda	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquits (w/in 24", can Microtopograp	ors (al least Leaves (BS erns (B10) _ pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I	o) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1)
Depth (inches)  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Indicators (any of the comment of the co	one indicator is  ) (w/in 12")  12")  2)	Sufficient)  N Surface N Inunda N Sparse N Mari D N Hydrog N Dry-Se N Other (	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave aposits (B15) ten Sulfide Odor (C1) (t ason Water Table (C2)	surface): nagery (B7) Surface (B8 w/in 12")	\$600 \[ \lambda \] \[ \lambda	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1)
Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Indicators (any of the comment Indicators (any of th	one indicator is  () (w/in 12")  (2")  2)  In ground surface	Sufficient)  N Surface N Inunda N Sparse N Mari D N Hydrog N Dry-Se N Other (	e Soil Cracks (B6) Ition Visible on Aerial in Ity Vegetated Concave eposits (B15) Iten Sulfide Odor (C1) (I ason Water Table (C2) explain)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$600 \[ \lambda \] \[ \lambda	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12")
Depth (Inches) Comments: COROLOGY Cetiand Hydrology Indicators (any of the color of	one indicator is  () (w/in 12")  12")  2)  In ground surfactor is	Sufficient)  Surfect  Surfect  Inunda  N Sparse  N Hydrog  N Dry-Se  Other (	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (tason Water Table (C2) explain)  Depth of water (in.)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$600 \[ \lambda \] \[ \lambda	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12")
Depth (Inches) comments:  DROLOGY Vetland Hydrology Indictionary Indicators (any of the second of th	one indicator is  () (w/in 12")  (2")  2)  In ground surface	Sufficient)  N Surface N Inunda N Sparse N Mari D N Hydrog N Dry-Se N Other (	e Soil Cracks (B6) Ition Visible on Aerial in Ity Vegetated Concave eposits (B15) Iten Sulfide Odor (C1) (I ason Water Table (C2) explain)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$600 \[ \lambda \] \[ \lambda	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12")
Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Indicators (any of the comment Indicators (any of the comment Indicators (any of the comment Indicators (B1) Comment Indicators (B2) Comments: Co	one indicator is  () (w/in 12")  12")  2)  In ground surfactor is	Sufficient)  Surfect Surfect Inunda  Sparse Mart Do Hydrog Other (  Se): No	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (tason Water Table (C2) explain)  Depth of water (in.)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$600 \[ \lambda \] \[ \lambda	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12")
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Indicators (any of the comment	one indicator is  () (w/in 12")  12")  2)  In ground surfactor is	Sufficient)  Surfect Surfect Inunda  Sparse Mart Do Hydrog Other (  Se): No	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (to ason Water Table (C2) explain)  Depth of water (in.) Depth to water (in.)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$60 	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquite (w/in 24*, can Microtopograp FAC Neutral T	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5) / dominants	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Indicators (any of the comment of the	one indicator is  () (w/in 12")  (2)  (12")  (2)  (3)  (4)  (7)  (7)  (8)  (9)  (9)  (9)  (9)  (9)  (9)  (9	Sufficient)  Surfac  Surfac  Inunda  N Sparse  N Hydrog  N Dry-Se  Other (	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (t ason Water Table (C2) explain)  Depth of water (in.) Depth to water (in.)	surface): nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$60 	pndary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or s Salt Deposits of Stunted or Stail Geomorphic P Shallow Aquite (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5) / dominants	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
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Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Indicators (any of the comment of the	one indicator is  () (w/in 12")  (2)  (3)  (4)  (5)  (7)  (7)  (8)  (9)  (9)  (9)  (9)  (9)  (9)  (9	Sufficient)  Surfect  Surfect  Inunda  Sparse  Mart Do  Hydrog  Other (  Se):  No  No  No  No  No  No  No  No  No  N	e Soil Cracks (B6) tion Visible on Aerial in bly Vegetated Concave eposits (B15) ten Sulfide Odor (C1) (to ason Water Table (C2) explain)  Depth of water (in.) Depth to water (in.) Depth but not yet filled?: Depth to sat. (in.)	nagery (B7) Surface (B8 w/in 12") ) (w/in 24")	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	pondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of R (pos. α,α or r Salt Deposits Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	ors (al least Leaves (BS erns (B10) pheres on L educed Iron soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5) / dominants	iving Roots (C3) (within 12) (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > #FACU+UPL dominants)





Site 117: Soil, July 19, 2017



Site 117: Soil, July 19, 2017



Site 117: Vegetation, looking north on July 19, 2017



Site 117: Vegetation, looking south on July 19, 2017

Project: Plan Vms Borou	gh/City: Haires	Date: 7/24/17
Applicant/Owner: Canalanka		Sampling Point #: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Investigator(s): Jewell, Cenningland	Firm: HDR Alaska, Inc.	
Lat. (dec.") 59. 40562 Long. 136.28241 ±	' NAD 83 Recorded on GPS #: № M	larked on map? ~ Field Map #:
Subregion (circle one): S Southcentral Western Aleutian Inte		
Local relief: Shape across slope: linear / convex / concave Shape	up/downslope: (inear / convex / concave	NWI classification: PEMIR
Photo nos descriptions: 392-93 (Soll) 394-97 (N-74)	Camera #: Veg Type (Viere	ock Level 4 or other): Wot Meader
Are climatic / hydrologic conditions on the site typical for this time of y		
Are Vegetation 🜙 , Soil 🔑 , or Hydrology 🔌 significantly disturb		
Are Vegetation <u>J</u> , Soil <u>J</u> , or Hydrology <u>J</u> naturally problemat		
SUMMARY OF FINDINGS		
Hydrophytic Vegetation Present? Yes 🔀 No		
Hydric Soil Present? Yes X	Is the sampled area within a wetland? Yes	No
Wetland Hydrology Present? Yes X No		g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (r	<del></del>	
	Dominance Te	
Tree Stratum (dbh≥ 3*) Species Cov.% Dom? Ind. Species C	ov.% Dom? Ind. Number of Dom	ninent Checies
1 5		
2. 6.	Total Number of	
3 7		
4 8		
Total Tree Cover:	Percent of Dom That are OBL, I	
50% of total cover: 20% of total co	Description Inc	lex worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)		Cover of: Multiply by:
	Cov.% Dom? Ind. OBL species	80 X1= 80
1. But da 15 Y FAC 7. Cor can	S FACE	
2 Pic sit 5 Y FACK 8. VIL ed-	TACM	
3. Vac ava 2 FRC 9. Emp nie 4. Vac uli 5 Y FAC 10. And pol	FAC FACU Species FACU Species	
6. Tom Let 2 FAC 12. Pat from	2 641	
Man for 2 FACU	Column Totals:	748 (A) 580 (B)
Total Sapling/Shrub Cover: 5-8		2 1/
50% of total cover: 20% of total co	ver: 16.2 Prevalence	Index = B/A = 2. (C
Abs.Cov.% Dom? Ind. Abs. C	ov.% Dom? Ind.	
1. Car June 25 Y PAKW12. Pla dil	2 500.1	
2. Car plu 10 0BL 13. 71 a str	3 FACU Hydrophytic V	egetation Indicators:
3. Tri are 60 Y 08414. For er	3 FACU Y Dominar	nce Test is>50%
4. Par pal 8 FACN 15. Swe per	3 FACTO -	nce Index is ≤3.0
5. Lep eyr 10 FACW 16. Cap tri	FAC N Morpholodata in	ogical Adaptations <sup>1</sup> (Provide supporting
		Remarks or on a separate sheet)
7. The alp 8 FAC 18. Fac and 8. Tot in 8 FACW 19. Are par	7 FAC N Problem	atic Hydrophytic Vegetation <sup>1</sup> (Explain)
	15 Y FACW	
		ydric soil and wetland hydrology must
11. Vio pal 7 FACU22 Dro not		ss disturbed or problematic.
Total Herb Cover: Z.(©		
50% of total cover: 10 S 20% of total co	ver: 42 Hydrophytic	
Circular 1/10-ac plot or other plot dimension: % of	Vegetation	Yes X No
% Cover of Wetland Bryophytes% Total Cover of Bry (where applicable)	bare ground: Present?	
Remarks:		

BOIL								Sampling Point #: \ 75
Profile Description: (Describe	to the depth ne	eded to document the i	ndicator o	r confirm	the abse	nce of indical	ors)	
Depth Horizon So	oil Matrix	Rec	dox Featu	ires			a,a dip.	
(in.) (opt.) Color (n	noist) %	Color (moist)	%	Type <sup>1</sup>	Loc2	Texture	(pos/	Remarks
0-17- 0:		Octor (moist)	70	1700	200	TOATUIB	neg)	for use comment number
			_				_	
			-					
			_					
			_		_			
			— .	San Silver	_			
			_					
			_		_		_	
Type: C = Concentration, D = D							-	= Root Channel, M = Mai
lydric Soil Indicators (check of	nes that apply,						):	
Standard Indicators:		Indicators fo	r Problen	natic Hy	dric Solls	131		
Histosol or Histel (A1) (≥16 sat'd during wet period of g	organic surface,	_N Alaska (	Color Cha	nge <sup>4</sup> (TA	4)			of hydrophytic vegetation
Histic Epipedon (A2) (8-16								dicator of wetland I an appropriate landscap
underlain by mineral soil w	th chroma ≤2)	_ ∧ Alaska A	Alpine Sw	ales (TA	5)	po	sition must	be present unless disturbe
7 Hydrogen Sulfide (A4) (with	hin 12°of ground	✓ Alaska F	Paday wit	h 2 5V H	tte.		problematic	if color change in Remarks
surface; @" in this	plt						ive obtails o	i color change in Remarks
M Thick Dark Surface (A12)		Alaska (			5Y or R	edder		
Alaska Gleyed (A13)		,	rlying Lay					
Alaska Redox (A14)		Other (e.	9., see p.9. Ment; expl	l1 of 2007 sin in Rem	arks)			
∠ Alaska Gleyed Pores (A15)			titoria, asipri		,			
Restrictive Layer (if present)		Drainage Clas		-	-			
Joon Ichae Folei (II hieselit)				The same of the sa				
Type: Name				>	ш.	ide Call Dus		Yes X No
Type: Name	2	Soil Map Unit		>	Ну	dric Soil Pres	sent?	Yes X No
Depth (inches)				>	Ну	dric Soil Pres	sent?	Yes X No
Depth (inches)				>	Ну	dric Soil Pres	sent?	Yes No
Depth (inches)				>	Ну	dric Soil Pres	sent?	Yes X No
Depth (inches)				>	Hy	dric Soil Pre	sent?	Yes X No
Depth (inches) Comments:		Soil Map Unit	Name:					
Depth (inches) Comments:  COMMENT		Soil Map Unit	Name:		Seco	andary Indical	ors (at least	2 are required)
Depth (inches)  Comments:  Comments:  COROLOGY  Vetland Hydrology Indicators (indicators (any one indicators (any one indicato	cator is sufficie	Soil Map Unit	Name:		Sec	endary Indical	ors (at leasi	i 2 are required) 9)
Depth (inches)  Comments:  COROLOGY  Vetland Hydrology Indicators (inches)  Y Surface Water (A1)	cator is sufficie ປ S	t apply, measure from nt) Surface Soil Cracks (B6	Name:	face):	Secondary 1	endary Indical Water-Staine Drainage Pati	ors (at leas d Leaves (B erns (B10)	2 are required) 9)
Depth (inches)  Comments:  COMMEN	cator is sufficie	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Ae	Name: soil suri	face): ery (B7)	Secondary 1	endary Indical Water-Stainer Drainage Pati Oxid'd Rhizos	ors (at leas d Leaves (B dems (B10) pheres on L	2 are required) 9) Living Roots (C3) (within 12
Depth (inches) Comments:  DROLOGY Vettand Hydrology Indicators (infinity Indicators (any one indicators (A1)) Y High Water Table (A2) (w/in 1) Y Saturation (A3) (w/in 12")	cator is sufficie	t apply, measure from nt) Surface Soil Cracks (B6	Name: soil suri	face): ery (B7)	Secondary 1	ondary Indicat Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F	ors (at least d Leaves (B derns (B10) pheres on L Reduced from	2 are required) 9) Living Roots (C3) (within 12 n (C4)
Depth (inches) Comments:  DROLOGY Vettand Hydrology Indicators (infinity Indicators (any one indicators (A1)) Y High Water Table (A2) (w/in 1) Y Saturation (A3) (w/in 12")	cator is sufficie い s 12") Y in	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Ae	Name: soil suri	face): ery (B7)	Sección de la companya de la company	ondary Indicat Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F	ors (at least d Leaves (B terns (B10) pheres on L Reduced from soil color ch	2 are required) 9) Living Roots (C3) (within 12)
Depth (inches)  Comments:  CDROLOGY  Vetland Hydrology indicators (inmary Indicators (any one individual)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Water Marks (B1)	<u>い</u> S (2") <u>Y</u> Ir <u>ル</u> S <u>ル</u> S	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Asparsely Vegetated Cor	Name: soil suri	face): ery (B7) rface (B8	Secondary A	ondary Indical Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F (pos. α,α or	ors (at least d Leaves (B erns (B10) pheres on L Reduced Iros soil color ch (C5)	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12")
Depth (inches)  Comments:  CDROLOGY  Vetland Hydrology indicators (inimary Indicators (any one indicators)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12*)  Water Marks (B1)  U Sediment Deposits (B2)	Cator is sufficie   ひ S   12")	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Aesparsely Vegetated Confart Deposits (B15)	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Secondary National Na	ondary Indical Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F (ροs. α,α or Salt Deposits	ors (at least d Leaves (B erns (B10) pheres on L deduced iro soil color ch (C5) ressed Plan	2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12")
Depth (inches)  Comments:  (DROLOGY  Vetland Hydrology Indicators (any one indicators (any one indicators)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12)  Water Marks (B1)  U Sediment Deposits (B2)  Drift Deposits (B3)	cator is sufficie い S 12") Y Ir N N D	soil Map Unit t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ry-Season Water Table	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Sec. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	endary Indical Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Sta Geomorphic F Shallow Aquit	ors (at least I Leaves (B erns (B10) pheres on L deduced iro soil color cl (C5) ressed Plan Position (D2 ard (D3)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1)
Depth (inches)  Comments:  Comment Indicators (any one indicators (	cator is sufficie い S 12") Y Ir N N D	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Astronomical Vegetated Confart Deposits (B15) lydrogen Sulfide Odor (	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Secondary 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ondary Indical Water-Stainer Drainage Pati Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Sta Geomorphic F Shallow Aquit (w/in 24*, car	ors (at leasi d Leaves (B erns (B10) pheres on L Reduced iron soil color of (C5) ressed Plan Position (D2 ard (D3) a perch H2C	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1) ) w/in 12")
Depth (inches)  Comments:  CDROLOGY  Vetland Hydrology Indicators (international Indicators (int	cator is sufficie い S 12") Y Ir N N D	soil Map Unit t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ry-Season Water Table	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indical Water-Stainee Drainage Pate Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Sta Geomorphic F Shallow Aquit (w/in 24", car Microtopogra	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color ch (C5) ressed Plant Position (D2 ard (D3) a perch H2C ohic Relief (	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1)
Depth (inches)  Comments:  CDROLOGY  Vetland Hydrology Indicators (inimary Indicators (any one individual indicators)  Y Surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  U Sediment Deposits (B2)  Drift Deposits (B3)  Y Algal Mat or Crust (B4)	cator is sufficie い S 12") Y Ir N N D	soil Map Unit t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ry-Season Water Table	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color of (C5) ressed Plant Position (D2 and (D3) a perch H2C ohic Relief ( Fest (D5)	i 2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
Depth (inches)  Comments:  (DROLOGY  Vetland Hydrology Indicators (any one indicators (any one indicators)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12)  Water Marks (B1)  U Sediment Deposits (B2)  Drift Deposits (B3)	cator is sufficie り S 12") Y Ir シ S シ M ソ H シ D	soil Map Unit t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ry-Season Water Table	Name: soil suri i) arial Imag ncave Sur	Face): ery (B7) face (B8	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color of (C5) ressed Plant Position (D2 and (D3) a perch H2C ohic Relief ( Fest (D5)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1) ) w/in 12")
Depth (inches) Comments:  CDROLOGY Vetland Hydrology Indicators (inimary Indicators (any one indicators) Y Surface Water (A1) Y High Water Table (A2) (w/in 12) Water Marks (B1) U Sediment Deposits (B2) Drift Deposits (B3) Y Algal Mat or Crust (B4) Iron Deposits (B5)	cator is sufficie り S 12") Y Ir シ S シ M ソ H シ D	Soil Map Unit  It apply, measure from It appl	Name:  soll surf  prial Imag  ncave Sur  (C1) (w/in  e (C2) (w/	Face): ery (B7) face (B8) 12") fin 24")	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color of (C5) ressed Plant Position (D2 and (D3) a perch H2C ohic Relief ( Fest (D5)	t 2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)  Comments:  Comment Indicators (any one indicators (	cator is sufficie い S (2")	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Aesparsely Vegetated Confart Deposits (B15) lydrogen Sulfide Odor (bry-Season Water Table other (explain)	soil suri	Face): ery (B7) face (B8) 12") fin 24")	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color of (C5) ressed Plant Position (D2 and (D3) a perch H2C ohic Relief ( Fest (D5)	t 2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)  Comments:  COROLOGY  Vetland Hydrology indicators (inmary Indicators (any one individual)  Y Surface Water (A1)  Y High Water Table (A2) (w/in 12")  Water Marks (B1)  U Sediment Deposits (B2)  Drift Deposits (B3)  Y Algal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from groundstrace Water Present?  Yes	cator is sufficie	t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As parsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ny-Season Water Table ther (explain)  Depth of water Depth to water	Name:  soil suri  i)  arial Imag  ncave Sur  (C1) (w/in  a (C2) (w/	Face): ery (B7) face (B8) 12") fin.24")	Sec. 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B erns (B10) pheres on L Reduced from soli color of (C5) ressed Plant Position (D2 and (D3) a perch H2C ohic Relief ( Fest (D5)	t 2 are required) 9) Living Roots (C3) (within 12 n (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water)
Depth (inches)  Comments:  Comment Deposits (any one individual one individu	cator is sufficie	soil Map Unit  t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on As sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( lary-Season Water Table other (explain)  Depth of water Depth to water that depth but not yet f	Name:  soil surf  arial Imag  ncave Sur  (C1) (w/in  e (C2) (w/	Face): ery (B7) face (B8) 12") fin.24")	Sec. 27 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	endary Indical Water-Staine Drainage Pat Oxid'd Rhizos Presence of Geos. α,α or Salt Deposits Stunted or Sta Geomorphic F Shallow Aquit (w/in 24", car Microtopogra FAC Neutral (# OBL+FAC)	ors (at least d Leaves (B terns (B10) pheres on L Reduced from soli color ch (C5) ressed Plan Position (D2 ard (D3) a perch H2C ohic Relief ( Fest (D5) V dominants	i 2 are required) 9) Living Roots (C3) (within 12 in (C4) in ange w/in 12") its (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL dominants)
Depth (inches)  Comments:  Comment Indicators (any one indicators (	cator is sufficie	soil Map Unit  t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Ae sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( ry-Season Water Table other (explain)  Depth of water Depth to water that depth but not yet f	Name:  soil suri  s)  arial Imag  ncave Sur  (C1) (w/in  a (C2) (w/  r (in.)	Face): ery (B7) face (B8) 12") fin 24")	Sec. 27 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Andary Indicative Vater-Stainer  Drainage Pati Dxid'd Rhizos  Presence of F (pos. α,α or Salt Deposits  Stunted or Stainer  Geomorphic F Shallow Aquit (w/in 24", car  Microtopograf  FAC Neutral	ors (at least d Leaves (B terns (B10) pheres on L Reduced from soli color ch (C5) ressed Plan Position (D2 ard (D3) a perch H2C ohic Relief ( Fest (D5) V dominants	i 2 are required) 9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C5) its (D1) b w/in 12") 0 w/in 12") 0 4) (caused by water) > # FACU+UPL dominants)
Depth (inches)  OMOLOGY  Vettand Hydrology Indicators (inmary Indicators (any one individual indicators)  Y Surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Y Algal Mat or Crust (B4)  Iron Deposits (B5)  ald Observations (in. from ground inface Water Present?  Yes  ater Table Present?	d surface):  No Seeping in at	Soil Map Unit  t apply, measure from nt) Surface Soil Cracks (B6 nundation Visible on Ae sparsely Vegetated Cor farl Deposits (B15) lydrogen Sulfide Odor ( lry-Season Water Table other (explain)  Depth of water Depth to water that depth but not yet f Depth to sat. (i Epi) Endo	Soil suri	Face): ery (B7) face (B8) 12") fin 24")	Secondary 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	andary Indical Water-Stainer Drainage Pate Oxid'd Rhizos Presence of Presence of Salt Deposits Stunted or Sta Geomorphic F Shallow Aquit (win 24", car Microtopogra FAC Neutral (# OBL+FAC)	ors (at least d Leaves (B terns (B10) pheres on L Reduced from soli color ch (C5) ressed Plan Position (D2 ard (D3) a perch H2C ohic Relief ( Fest (D5) V dominants	t 2 are required) 9) Living Roots (C3) (within 12 in (C4) in angle w/in 12") ts (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL dominants)





Site 125: Soil, July 20, 2017



Site 125: Soil, July 20, 2017



Site 125: Vegetation, looking north on July 20, 2017



Site 125: Vegetation, looking south on July 20, 2017

Project: Palmer VMS	Borough/City: TNU /Ha	NS Date: 7-20-2017
Applicant/Owner: (onstartine		Sampling Point #: 127-
Investigator(s): dong sandhi min anninchen	Firm: H	IDR Alaska, Inc.
Lat. (dec.") 59. 40627 Long. 136. 28246	±' NAD 83 Recorded o	n GPS #: Marked on map? Field Map #.
Subregion (circle one): SE Southcentral Western Aleutian		
ocal relief: Shape across slope linear convex / concave S		
Photo nos./descriptions: 404/65 Soru; 406-409 NESW	Camera #: M@	Veg Type (Viereck Level 4 or other):
Are climatic / hydrologic conditions on the site typical for this tim		
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$ significantly of	disturbed? Are "Normal Circu	umstances" present? Yes V No
Are Vegetation $N$ , Soii $N$ , or Hydrology $N$ naturally prob	plematic? If needed, explain	answers here.
SUMMARY OF FINDINGS		
Hydrophytic Vegetation Present? Yes No	ls the sampled are	
Hydric Soil-Present? Yes No	within a wetland	
Wetland Hydrology Present? Yes No		Remarks (e.g., marginal?):
/EGETATION (Use scientific names.) Estimate absolute % co	over (not relative cover). % ca	n total >100%. Use 2012 indicator status.
Tree Stratum (dbh≥ 3*)		Dominance Test worksheet:
Species Cov.% Dom? Ind. Species	Cov.% Dom? Ind.	Number of Dominant Species
1 5		That are OBL, FACW, or FAC:
2 6		Total Number of Dominant
3 7		Species Across Ali Strata; 5
4 8	ado as u to	Percent of Dominant Species
Total Tree Cover:	edge of plot.	That are OBL, FACW, or FAC: 100%
50% of total cover: 20% of to	otal cover:	Prevalence Index worksheet:
Sapiing/Shrub Stratum (woody plants < 3" dbh)		Total % Cover of: Multiply by
pvl Abs.Cov % Dom? Ind.	Abs.Cov.% Dom? Ind.	OBL species 30 X1= 30
1. Salie par Ro Y FACW 7.		FACW species 50 X2= 116
2. Salis bar 510 Y FAC 8.  3. Vib eduk F FAC Ug.		FAC species 93 X3= 279
4. Betma glan B FAC 10.	319	FACU species 7 X4= 28
5. Potentilla frut 3 PAC 11.		UPL + NL species Ø X5= Ø
6. Rub arc 8 FAC 12.		Column Totals: 188 (A) 453
Total Sapling/Shrub Cover: 61		Ocidina Totals. 100 (A)
50% of total cover: 30.5 20% of to		Prevalence Index = B/A = 2,41
Herb Stratum	otal cover.	Prevalence index - B/A
Abs.Cov.% Dom? Ind.	Abs. Cov.% Dom? Ind.	
1. Cal can 40 7 FAC 12. Aron delph	T FAC	Hydrophytic Vegetation Indicators:
2 Core apat 30 7 OBL 13. Carex 60.	_ 10 _ #	v .
3. Sang can 20 Y FACW 14. Plat dilata	_ T _ tacw	Y Prevalence Index is ≤3.0
1. Viola large 18 FACW 15. Frit cam  5. Epini arv 5 FAC 18. Val. Sitch		
Bring pal 5 FACW 17. Viola Sp.		Morphological Adaptations (Provide suppodata in Remarks or on a separate sheet)
chives All sch 3 FAC 18. Equi pra	5 FACW	
Trien erro T FAC. V 19. Unk horb @/	thous T	Problematic Hydrophytic Vegetation <sup>1</sup> (Expl
Senerio trianglisi 5 FACW 20.		
O. Cashileja Una 2 FAC 21.		Indicators of hydric soil and wetland hydrology m
1 Cashilleya Minuta 2 FAC 22.		be present unless disturbed or problematic.
Total Herb Cover: 144	30000 - 1000	
50% of total cover: 72 20% of to	tal cover: ZE.8	Hydrophytic
Circular 1/10-ac plot  or other plot dimension:%  6 Cover of Wetland Bryophytes  % Total Cover (where applicable)	% of bare ground: 25 of Bryophytes 30 %	Vegetation Yes No
Remarks: #19- alt, lanc leave; flower		
17- WII I MAL Kove; Hover		

Depth Horizon	Soil Matri	ix iii	Redox Features			a,a dip.	
(in.) (opt.)	Color (moist)	%	Color (moist) % Typ	e <sup>1</sup> Loc²	_Texture	(pos/	Remarks
2-18 Oi	COIOI (IIIOISI)	A	Color (most) /4 Typ	s Loc		neg)	(or use comment number
10 00		_				_	
						_	
					_		
<del></del>			duced Matrix, CS=Coated Sand C				= Root Channel, M = Ma
Hydric Soll Indicate	ors (check ones the	at apply, me	easure from top of mineral layer	s unless oth	nerwise noted)	:	
Standard Indicators			Indicators for Problematic	Hydric Soil	is³:		
Y Histosol or His	tel (A1) (≥16"organic	c surface,	N Alaska Color Change	(TA4)			of hydrophytic vegetation
A1	wet period of growing a n (A2) (8-16" organic						dicator of wetland an appropriate landscar
- made Ebibode	mineral soil with chrom	na ≤2)	N Alaska Alpine Swales	(TA5)	pos	ition must b	e present unless disturb
Y Hydrogen Sulfi	de (A4) (within 12"of	f ground	Alaska Redox with 2.5	V Hue		problematic.	f color change in Remark
surface; @_	6 's in this pit			1.0		ve decails o	color change in Reman
N Thick Dark Sur	face (A12)		_√_ Alaska Gleyed without Underlying Layer	Hue 5Y or F	Redder		
N Alaska Gleyed	(A13)		A				
N Alaska Redox (			Other (e.g., see p.91 of : Supplement; explain in				
N Alaska Gleyed							
Restrictive Layer (if p		- 10	Drainage Class: P.D.	- 1 -			114
	1400						
Type: MAY	<b>u</b> .		I Soil Man ( Init Name:	H	wiric Soli Peas	ant?	Vec No.
			Soil Map Unit Name:	Ну	dric Soli Pres	ent?	Yes No
Depth (inches)		ones that ar		+E	- 24 - 24 - 4		
Depth (inches) _ Comments:  /DROLOGY Vetland Hydrology	Indicators (check o		Soil Map Unit Name:	: Sec	condary Indicate	ors (at least	2 are required)
Depth (inches) _ Comments:  /DROLOGY Vetland Hydrology Primary Indicators (	Indicators (check o	sufficient)	oply, measure from soil surface	: Sec	condary Indicate Water-Stained	ors (at least	2 are required)
Depth (inches)	Indicators (check of any one indicator is	sufficient)	oply, measure from soil surface ace Soil Cracks (B6)	: Sec	condary Indicate Water-Stained Drainage Patte	ors (at least Leaves (Bi	2 are required)
Depth (inches) _ Comments:  /DROLOGY Vetland Hydrology Primary Indicators (A _ High Water Table	Indicators (check of any one indicator is 1) (A2) (W/in 12")	sufficient) N Surf	oply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery (	: <u>Sec</u>	condary Indicate Water-Stained Drainage Patte	ors (at least Leaves (Bi erns (B10)	2 are required)  iving Roots (C3) (within 1:
Depth (inches) _ Comments:  /DROLOGY Vetland Hydrology Inmary Indicators ( _ Surface Water (A _ High Water Table _ Saturation (A3) (	Indicators (check of any one indicator is 1) (A2) (W/in 12") (V/in 12")	Sufficient)  N Surf Inun  N Spar	oply, measure from soil surface ace Soil Cracks (B6) dation Visible on Aerial Imagery (	: Sec N B7) N (B8)	water-Stained Drainage Patte Oxid'd Rhizosa Presence of R (pos. a,a or s	ors (at least Leaves (Bl erns (B10) pheres on L educed Iror soil color ch	2 are required)  iving Roots (C3) (within 1:
Depth (inches) _ Comments:  // DROLOGY Vetland Hydrology Primary Indicators ( // Surface Water (A // High Water Table // Saturation (A3) (V // Water Marks (B1)	Indicators (check of any one indicator is 1) (A2) (w/in 12")	Sufficient)  N Surf Inun N Spai	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15)	: Sec N B7) N (B8) N	water-Stained Drainage Patte Oxid'd Rhizosi Presence of R (pos. a,a or s Salt Deposits (	ors (at least Leaves (Bi erns (B10) pheres on L educed Iror soil color ch (C5)	2 are required)  iving Roots (C3) (within 1: 1 (C4) ange w/in 12*)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Indicators  Comme	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (v/in 12")  its (B2)	Sufficient)  N Surf Inun N Spai N Mari Y Hydi	oply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12")	: Sec N N (B8) N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizos; Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre	ens (at least Leaves (Bt erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant	2 are required)  iving Roots (C3) (within 1:  n (C4) ange w/in 12")  s (D1)
Depth (inches) Comments:  Comments:  COMMENT OF THE PROBLEM OF THE	Indicators (check of any one indicator is 1) (A2) (w/in 12") (v/in 12") (ts (B2)	Sufficient)  N Surf Inun N Spai N Mari Y Hydi	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15)	: Sec N (B8) N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizos; Presence of R. (pos. a,a or s Salt Deposits ( Stunted or Stre Geomorphic P	ens (at least Leaves (Bt ems (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  s (D1)
Depth (inches)	Indicators (check of any one indicator is 1) (A2) (w/in 12") (v/in 12") (ts (B2)	Sufficient)  N Surf Inun N Spar N Mari Y Hydr N Dry-	oply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12")	: Sec N N (B8) N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizos; Presence of R. (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita	ons (at least Leaves (Bt ems (B10) _ oheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3)	2 are required)  iving Roots (C3) (within 1:  n (C4) ange w/in 12")  s (D1)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Hydrology  Primary Indicators  Comment Primary Indicators  Comment Primary Indicators  Comment Deposit  Comment Deposits  Commen	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (v/in 12")  its (B2)  tt (B4)	Sufficient)  N Surf Inun N Spar N Mari Y Hydr N Dry-	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24	: Sec N (B8) N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can	ors (at least Leaves (Bi erns (B10) _ oheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O	2 are required)  iving Roots (C3) (within 1:  i (C4)  ange w/in 12*)  s (D1)
Depth (inches)Comments:  COMMENTS:  COMME	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (v/in 12")  its (B2)  tt (B4)	Sufficient)  N Surf Inun N Spar N Mari Y Hydr N Dry-	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24	: Sec N (B8) N N N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)
Depth (inches) Comments:  COMMENT	Indicators (check of any one indicator is 1) a (A2) (w/in 12") av/in 12") b (B2) b) t (B4)	Sufficient)  N Surf Inun N Spar N Marl Y Hydr Dry- Othe	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24	: Sec N (B8) N N N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5)	2 are required)  iving Roots (C3) (within 1: n (C4) ange w/in 12")  s (D1)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Prology  Comment Indicators  Comments  Comment	indicators (check of any one indicator is 1)  (A2) (w/in 12")  (x/in 12")  (ts (B2)  (t)  t (B4)	Sufficient)  N Surf Inun N Span N Marl Y Hydi N Dry- Othe	poply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) regen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24 or (explain)	: Sec N (B8) N N N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Processes  Comment Deposity  Comments:	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (A2) (w/in 12")  (B2)  (B4)  from ground surfactor is 12")	Sufficient)  N Surf Inun N Span N Marl Hydi N Dry- Othe	oply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( rsely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.)	: Sec N (B8) N N N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5)	2 are required)  iving Roots (C3) (within 1: n (C4) ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Processes  Comment Deposity  Comments:	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (X) (W/in 12")  (X) (B2)  (X) (B4)  (X) (From ground surfactor is 1)  (X) (Yes Yes Yes Yes Yes (A)	Sufficient)  N Surf Inun N Span N Marl Hydr Othe	ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12") Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.)  Depth to water (in.)	: Sec N (B8) N N N N N N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5)	2 are required)  iving Roots (C3) (within 1: n (C4) ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)
Depth (inches) Comments: 2. 3.  YDROLOGY  Vetland Hydrology Primary Indicators (AC) High Water Table Y Saturation (A3) (VI) Sediment Deposits (B3) Algal Mat or Crus I Iron Deposits (B5) ield Observations (in urface Water Present/ater Table Present?	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (x/in 12")  (x/	Sufficient)  N Surf Inun N Spar N Mari Y Hydr N Dry- Othe	poply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.) Depth to water (in.)	Sec. N.	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T (# OBL+FACW	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required)  iving Roots (C3) (within 1:  i (C4)  ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)  > #FACU+UPL dominants)
Depth (inches) Comments:  Depth (inches) Comments:  Depth (inches) Comments:  Primary Indicators Surface Water (A High Water Table Saturation (A3) (v Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crus Iron Deposits (B5) Ield Observations (incurface Water Present/ater Table Present?	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (x/in 12")  (x/	Sufficient)  N Surf Inun N Span N Marl Hydr Othe	poply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.) Depth to water (in.) Depth to sat. (in.) SMACC	Sec. N.	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24*, can Microtopograp FAC Neutral T	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required)  2)  iving Roots (C3) (within 1:  i (C4)  ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)  > #FACU+UPL dominants)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Presents:  Comment Deposits (B1)  Comment Deposits (B2)  Comment Deposits (B3)  Comment Deposits (B4)  Comment Deposits (B5)  Com	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (A2) (w/in 12")  (Is (B2)  (I)  (I)  (I)  (I)  (I)  (I)  (I)  (	Sufficient)  N Surf Inun N Span N Marl Hydi N Dry- Other	poly, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12") Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.) Depth to water (in.) Let depth but not yet filled? Epi Endo Unknown	Sec   N   N   N   N   N   N   N   N   N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosy Presence of R (pos. α, α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquitz (w/in 24*, can Microtopograp FAC Neutral T (# OBL+FACW	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required)  iving Roots (C3) (within 1:  i (C4)  ange w/in 12")  s (D1)  w/in 12")  O4) (caused by water)  > #FACU+UPL dominants)
Depth (inches) Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comments:  Comment Presents:  Comment Deposits (B1)  Comment Deposits (B2)  Comment Deposits (B3)  Comment Deposits (B4)  Comment Deposits (B5)  Com	Indicators (check of any one indicator is 1)  (A2) (w/in 12")  (A2) (w/in 12")  (Is (B2)  (I)  (I)  (I)  (I)  (I)  (I)  (I)  (	Sufficient)  N Surf Inun N Span N Marl Hydi N Dry- Other	poply, measure from soil surface) ace Soil Cracks (B6) dation Visible on Aerial Imagery ( reely Vegetated Concave Surface Deposits (B15) rogen Sulfide Odor (C1) (w/in 12*) Season Water Table (C2) (w/in 24 or (explain)  Depth of water (in.) Depth to water (in.) Depth to sat. (in.) SMACC	Sec   N   N   N   N   N   N   N   N   N	condary Indicate Water-Stained Drainage Patte Oxid'd Rhizosy Presence of R (pos. α, α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquitz (w/in 24*, can Microtopograp FAC Neutral T (# OBL+FACW	ors (at least Leaves (Bi erns (B10) _ cheres on L educed Iror soil color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required)  iving Roots (C3) (within 1 in (C4) is and e w/in 12")  s (D1)  w/in 12")  O4) (caused by water)  # FACU+UPL dominants)





Site 127: Soil, July 20, 2017



Site 127: Soil, July 20, 2017





Site 127: Vegetation, looking east on July 20, 2017



Site 127: Vegetation, looking south on July 20, 2017

Project: Palnee VM5 Borough/Capplicant/Owner: (onstantie		=7.1	Sampling	Point #: 131
rvestigator(s): dong sevell, evin cunningham	Firm: I	IDR Alaska, inc.		
at. (dec.*) 59.406-4 Long. 136.383-4 ± 'N	AD 83 Recorded o	n GPS #: 🗸 Mar	ked on map? v	Field Map #
subregion (circle one) SE Southcentral Western Aleutian Interior	Northern Landfo	m: hellside	Slope (%):	Aspect: _S
ocal relief: Shape across slope: (linear / convex / concave Shape up/de				
hoto nos /descriptions: 4/2/4/3 Solt; 4/4-4/7 NESW	Camera #: <u>M0</u>	Veg Type (Viereck	Level 4 or othe	er): CATS
re climatic / hydrologic conditions on the site typical for this time of year?	Yes: √ No:	_ If no, explain.		HGM type:
re Vegetation M., Soil M., or Hydrology M. significantly disturbed?			Yes No_	
re Vegetation $M$ , Soil $M$ , or Hydrology $M$ naturally problematic?	If needed, explain	answers here.		
UMMARY OF FINDINGS				
Hydrophytic Vegetation Present? Yes No	is the sampled are	a		
Hydric Soil Present? Yes No V	within a wetland		lo <u> </u>	
Wetland Hydrology Present? Yes No		Remarks (e.g.,	marginal?):	
EGETATION (Use scientific names.) Estimate absolute % cover (not re	elative cover). % ca	n total >100%. Use	2012 indicator	status.
Tree Stratum (dbh≥ 3")	T.	Dominance Test	worksheet:	100
Species Cov.% Dom? Ind. Species Cov.%	6 Dom? Ind.	Number of Domin		
1. Alnus Sinvata 80 Y FAC 5.		That are OBL, FA	CW, or FAC:	3
2		Total Number of I		4.
3		Species Across A	III Strata:	4
4 8		Percent of Domin	ant Species	
Total free Cover.		That are OBL, FA	CW, or FAC:	75 (A
50% of total cover: 40 20% of total cover:	16	Prevalence Inde	x worksheet:	
Sapling/Shrub Stratum (woody plants < 3" dbh)		Total % C	cover of:	Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.	% Dom? Ind.	OBL species _		X1=
		FACW species	5	X2= 10
2. <del>Oplojen hare 22</del>		FAC species	124	X3= 372
10		FACU species	36	X4= 144
11		UPL + NL species		X5= -
3 12		Column Totals:	165 (A)	526 (
Total Sapling/Shrub Cover: _/6				
50% of total cover: 5 20% of total cover:	ح	Prevalence in	dex = B/A =	3.19
lerb Stratum			_	
Abs.Cov.% Dom? Ind. Abs. Cov.9				
Athy file from 40 y FAC 12 Cal can 2	FAC	Hydrophytic Veg	etation Indica	tors:
Gymn day 20 7 FAC. W 13.		Y Dominance	e Test is>50%	
Wy die 8 FAC 14.  Tragello tri B FAC 15.		N Prevalence		
Gal to flanum 2 FAC 16.		L <sup>2</sup>		1m
Strep and 3 FACU 17.				s <sup>1</sup> (Provide support separate sheet)
Strep ras 2 FAC U18.				/egetation1 (Explain
Egni arr 2 FAC 19.		Pioblemat	ic riyuropriyac i	veAeranou (Exbian
Val sitch 10 TAC 20.				
O. Herac Ian 3 FAC W 21.		Indicators of hyd be present unless		land hydrology mus
1. Viela glab 5 FACW 22.	( ) (	De present uniess	aleranea oi bi	- Julianialia
Total Herb Cover: 105				
50% of total cover: 52.5 20% of total cover:		Hydrophytic	Yes /	No
ircular 1/10-ac plot 👱 or other plot dimension: % of bare	ground: 20	Vegetation Present?	Tes	NO
Cover of Wetland Bryophytes% Total Cover of Bryoph (where applicable)	ytes _Ø%			
emarks: base grand = lenves + branches / when				

Profile Description: (De	scribe to the dep	pth needed	to document the	indicato	r or confirm	the abse	nce of indicate	ors)	9 19 8
Depth Horizon	Soil Matrix		Re	dox Fea	tures			α,α dip.	
(in.) (opt.) C	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc2	Texture	(pos/	Remarks
0-2 Oi			10.0	9				neg)	(or use comment number
2-3 Oe									
2.12- 4	MILES 2			200	Alex		SiL	_	10YR2/2
A 10	5 YR 2.5/3			E			SiL		10 11/24/2
	1R2.5/2					_	SiL	neg	20°/0 cobbles
						_			20 / 0 00 43
			75						
Type: C = Concentration	, D = Depletion,	RM = Redu	uced Matrix, CS=0	Coated S	Sand Grain	s <sup>2</sup> Locatio	on: PL = Pore	Lining, RC	= Root Channel, M = Mat
iydric Soil Indicators (c									
Standard Indicators:		- 00	Indicators fo						
M Histosol or Histel (A	i) (≥16"organic si	urface.						ne indicator	of hydrophytic vegetation
sat'd during wet per	riod of growing sea	ason)	N Alaska	Color Ci	nange" (IA	4)	one	primary in	dicator of wetland
N Histic Epipedon (A2) underlain by minera	(8-16" organics,	sat'd,	N Alaska	Alpine S	wales (TA5	)	nyo	Irology, and sition must	f an appropriate landscape be present unless disturbe
N Hydrogen Sulfide (A							OF I	problematic	
surface; @	in this pit		N Alaska	Redox w	vith 2.5Y Hu	19	⁴Gi	ve details o	of color change in Remarks
Thick Dark Surface (	A12)		N_ Alaska (	Gleyed v		5Y or R	edder		
N Alaska Gleyed (A13)			N Other (e	.g., see p	.91 of 2007				
N, Alaska Redox (A14)					plain in Rem	erks)		188	
N Alaska Gleyed Pores	(A15)								
lestrictive Layer (if preser	nt)		Drainage Clas	ss: W	D			10/15/1-	
				<del></del>	•	_			
Type: None			Soil Map Unit	Name:		Hy	dric Soil Pres	ent?	Yes No_V
Depth (inches) Comments: 3-g = 7	-5YR 2.5/2	2 IOYR		Name:		Hy	dric Soil Pres	ent?	Yes No _V
Depth (inches) Comments: 3-3 = 7  CDROLOGY Vetland Hydrology Indicators (any of the comment)	ators (check one	es that app	2/2. ly, measure from	n soil su	irface):	Seco	ondary Indicate Water-Stained	ors (at leas Leaves (B	t 2 are required)
Depth (Inches)	ators (check one	es that app ufficient) N Surfac	2/2.  ly, measure from the Soil Cracks (B6	n soil su		Seco	ondary Indicate Water-Stained Drainage Patte	ors (at leas Leaves (B ems (B10)	t 2 are required)
Depth (inches) Comments: 3-3 = 7  CDROLOGY Vetland Hydrology Indicators (any of the comment)	ators (check one ne indicator is si (w/in 12")	es that app ufficient) N Surfac N Inunda	2/2. ly, measure from	n soll su 6) erial Ima	agery (B7)	Second N	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R	ors (at leas Leaves (B ams (B10) pheres on leduced ino	t 2 are required) 9) _iving Roots (C3) (within 12'n (C4)
Depth (inches)  Comments: 3-2 = 7  Comments: 3-2 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient) N Surfac N Inunda N Sparse N Marl D	2/2.  ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15)	n soil su 6) erial Ima ncave S	agery (B7) urface (B8)	Second N	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R	ors (at leas Leaves (B ems (B10) pheres on l educed iro soil color ci	t 2 are required) 9) _iving Roots (C3) (within 12
Depth (inches)  Comments: 3-2 = 7  Comments: 3-2 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient) N Surfac N Inunda N Sparse N Marl D	2/2.  ly, measure from the Soil Cracks (Beation Visible on Arealy Vegetated Core	n soil su 6) erial Ima ncave S	agery (B7) urface (B8)	Sector N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patto Oxid'd Rhizos Presence of R (pos. α,α or	ors (at leas Leaves (B erns (B10) pheres on l educed iro soil color ci (C5)	t 2 are required) 9) Living Roots (C3) (within 12' n (C4) hange w/in 12")
Depth (inches)  Comments: 3-2 = 7  Comments: 3-2 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient) N Surfac N Inunda N Sparse N Mari D N Hydrog	2/2.  ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15)	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) Jurface (B8) Vin 12°)	Sector N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patt Oxid'd Rhizos Presence of R (pos. a,a or s Salt Deposits	ors (at leas Leaves (B ems (B10) pheres on leduced iro soil color of (C5) essed Plan	t 2 are required) 9) Living Roots (C3) (within 12' n (C4) hange w/in 12")
Depth (inches)  Comments: 3-2 = 7  Comments: 3-2 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfact N Inunda N Sparse N Mari D N Hydrog N Dry-Se	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Colleposits (B15) gen Sulfide Odor	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) Jurface (B8) Vin 12°)	Second N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. a.a or s Salt Deposits Stunted or Str Geomorphic P Shallow Aquita	prs (at leas Leaves (B ems (B10) pheres on leduced iro soil color cl (C5) essed Plan osition (D2 ard (D3)	t 2 are required) 9) Living Roots (C3) (within 12* n (C4) hange w/in 12*) ts (D1)
Depth (Inches)  Comments: 3-9 = 7  Comments: 3-9 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfact N Inunda N Sparse N Mari D N Hydrog N Dry-Se	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15) gen Sulfide Odor teason Water Table	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) Jurface (B8) Vin 12°)	Sect N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stail Deposits of Stail Oxide Aquita (w/in 24", can	pors (at lease Leaves (B10) pheres on I educed iro soil color cl (C5) essed Plan osition (D2 ard (D3) perch H20	t 2 are required)  29)  Living Roots (C3) (within 12'n (C4) hange w/in 12")  ts (D1)  ) w/in 12")
Depth (Inches)  Comments: 3-9 = 7  Comments: 3-9 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfact N Inunda N Sparse N Mari D N Hydrog N Dry-Se	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15) gen Sulfide Odor teason Water Table	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) Jurface (B8) Vin 12°)	Sec X X X X X X X X X X X X X X X X X X X	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	pors (at lease (B10) pheres on I educed iro soil color ci (C5) essed Plan osition (D2 ard (D3) perch H2C hic Relief (est (D5)	t 2 are required)  29)  Living Roots (C3) (within 12 or (C4) hange w/in 12")  ts (D1)  2) w/in 12")  D4) (caused by water)
Depth (Inches)  Comments: 3-9 = 7  Comments: 3-9 =	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfac N Inunda N Spars N Marl D N Hydro N Dry-Se N Other	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15) gen Sulfide Odor teason Water Table	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) Jurface (B8) Vin 12°)	Sec X X X X X X X X X X X X X X X X X X X	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	pors (at lease (B10) pheres on I educed iro soil color ci (C5) essed Plan osition (D2 ard (D3) perch H2C hic Relief (est (D5)	t 2 are required)  29)  Living Roots (C3) (within 12'n (C4) hange w/in 12")  ts (D1)  ) w/in 12")
Depth (Inches) Comments: 3-Q = 7  Comment Deposits (A1)  Comment Deposits (B2)  Comment Deposits (B2)  Comment Deposits (B3)  Comment Deposits (B3)  Comment Deposits (B4)  Comment Deposits (B4)  Comment Deposits (B4)  Comment Deposits (B5)	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfac N Inunda N Spars N Marl D N Hydro N Dry-Se N Other	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Corposits (B15) gen Sulfide Odor teason Water Table	n soil su 6) erial Ima ncave S (C1) (w/	agery (B7) surface (B8) (in 12") w/in 24")	Sec X X X X X X X X X X X X X X X X X X X	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	pors (at lease (B10) pheres on I educed iro soil color ci (C5) essed Plan osition (D2 ard (D3) perch H2C hic Relief (est (D5)	t 2 are required)  29)  Living Roots (C3) (within 12'n (C4) hange w/in 12")  ts (D1)  ) w/in 12")  D4) (caused by water)
Depth (Inches)	ators (check one ne indicator is si (w/in 12") 2")	es that app ufficient)  N Surfac N Inunda N Sparse N Meri D N Hydrog N Dry-Se N Other	ly, measure from the Soil Cracks (B6 ation Visible on An ely Vegetated Con eleposits (B15) gen Sulfide Odor eason Water Tabl (explain)	n soil su 6) erial Ime ncave S (C1) (w/ le (C2) (	agery (B7) furface (B8) fin 12") w/in 24")	Sec X X X X X X X X X X X X X X X X X X X	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	pors (at lease (B10) pheres on I educed iro soil color ci (C5) essed Plan osition (D2 ard (D3) perch H2C hic Relief (est (D5)	t 2 are required)  29)  Living Roots (C3) (within 12 or (C4) hange w/in 12")  ts (D1)  2) w/in 12")  D4) (caused by water)
Depth (Inches)	ators (check one ne indicator is si  (w/in 12")  2")  ground surface Yes Yes	es that app  ufficient)  N Surfac  N Inunda  N Sparsa  N Marl D  N Hydrog  N Dry-Se  N Other	ly, measure from the Soil Cracks (Beation Visible on Arably Vegetated Contention State (B15) gen Sulfide Odor teason Water Table (explain)  Depth of water Depth to water	n soll su erial Ima ncave S (C1) (w/ le (C2) (f	agery (B7) surface (B8) (in 12") w/in 24")	Sec X X X X X X X X X X X X X X X X X X X	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	pors (at lease (B10) pheres on I educed iro soil color ci (C5) essed Plan osition (D2 ard (D3) perch H2C hic Relief (est (D5)	t 2 are required)  29)  Living Roots (C3) (within 12 or (C4) hange w/in 12")  ts (D1)  2) w/in 12")  D4) (caused by water)
Depth (inches) Comments: 3-Q = 7  Comment Deposits (any of a comment Deposits (B1)  Comment Deposits (B2)  Comment Deposits (B3)  Comment Deposits (B4)  Comment Deposits	ators (check one ne indicator is si (w/in 12") 2") 2") ground surface Yes Yes Seeping	es that app ufficient)  N Surfac N Inunda N Sparse N Mari D N Hydrog N Dry-Se N Other  No V In at that c	ly, measure from the Soil Cracks (Beation Visible on Arealy Vegetated Corposits (B15) gen Sulfide Odor pason Water Table (explain)  Depth of water Depth to water depth but not yet it	n soil su 6) erial Ima ncave S (C1) (w/ e (C2) ('	agery (B7) surface (B8) fin 12") w/in 24")	Sec N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits of Salt Deposits of Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FAC	prs (at leas Leaves (B ems (B10)) pheres on I educed iro soil color of (C5) essed Plan osition (D2 ard (D3) perch H20 hic Relief ( est (D5) / dominants	t 2 are required)  (9)  Living Roots (C3) (within 12 or (C4) hange w/in 12")  ts (D1)  (b)  (caused by water)  (caused by water)
Depth (Inches)  Comments: 3-2 = 7  Comments: 3-2 =	ators (check one ne indicator is si  (w/in 12")  2")  ground surface Yes Yes	es that app  ufficient)  N Surfac  N Inunda  N Sparsa  N Marl D  N Hydrog  N Dry-Se  N Other	ly, measure from the Soil Cracks (Beation Visible on Arabity Vegetated Corresponding State (B15) gen Sulfide Odor Bason Water Table (explain)  Depth of water Depth to water Depth to sat. (Corresponding State (B15)	r (in.) filled?:	agery (B7) furface (B8) /in 12") w/in 24")	Sec N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos, Presence of R (pos. α,α or sell Deposits of Stunted or Stained or Stain	prs (at leas Leaves (B ems (B10)) pheres on I educed iro soil color of (C5) essed Plan osition (D2 ard (D3) perch H20 hic Relief ( est (D5) / dominants	t 2 are required)  (9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C4) in (C4) in (C5)  (b)  (c)  (c)  (c)  (c)  (c)  (c)  (c
Depth (inches)	ators (check one ne indicator is si  (w/in 12")  2")  ground surface  Yes  Yes  Seeping  Yes	es that app ufficient)  N Surfac N Inunda N Sparsa N Mari D N Hydron N Dry-Sa N Other  No No No No	ly, measure from the Soil Cracks (Beation Visible on Arabiton Visible on Arabiton Visible on Arabiton Visible Odor the Soil Cracks (B15) gen Sulfide Odor the Soil (explain)  Depth of wate Depth to wate depth but not yet to Depth to sat. (Epi Endo	r (in.) Unknov	agery (B7) furface (B8) fin 12") w/in 24")	Second N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits of Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at leas Leaves (B ems (B10)) pheres on I educed iro soil color of (C5) essed Plan osition (D2 ard (D3) perch H20 hic Relief ( est (D5) / dominants	t 2 are required)  (9)  Living Roots (C3) (within 12')  In (C4)  In (C4)  In (C4)  In (C4)  Its (D1)  Its
Depth (inches)	ators (check one ne indicator is si  (w/in 12")  2")  ground surface  Yes  Yes  Seeping  Yes	es that app ufficient)  N Surfac N Inunda N Sparsa N Mari D N Hydron N Dry-Sa N Other  No No No No	ly, measure from the Soil Cracks (Beation Visible on Arabiton Visible on Arabiton Visible on Arabiton Visible Odor the Soil Cracks (B15) gen Sulfide Odor the Soil (explain)  Depth of wate Depth to wate depth but not yet to Depth to sat. (Epi Endo	r (in.) Unknov	agery (B7) furface (B8) fin 12") w/in 24")	Second N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits of Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at leas Leaves (B ems (B10)) pheres on I educed iro soil color of (C5) essed Plan osition (D2 ard (D3) perch H20 hic Relief ( est (D5) / dominants	t 2 are required)  (9)  Living Roots (C3) (within 12*  In (C4)  In ange w/in 12*)  Its (D1)  W/in 12*)  W/in 12*)  W/in 12*)  A # FACU+UPL dominants)
Depth (inches)	ators (check one ne indicator is si  (w/in 12")  2")  ground surface  Yes  Yes  Seeping  Yes	es that app ufficient)  N Surfac N Inunda N Sparsa N Mari D N Hydron N Dry-Sa N Other  No No No No	ly, measure from the Soil Cracks (Beation Visible on Arabiton Visible on Arabiton Visible on Arabiton Visible Odor the Soil Cracks (B15) gen Sulfide Odor the Soil (explain)  Depth of wate Depth to wate depth but not yet to Depth to sat. (Epi Endo	r (in.) Unknov	agery (B7) furface (B8) fin 12") w/in 24")	Second N N N N N N N N N N N N N N N N N N N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits of Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACV	prs (at leas Leaves (B ems (B10)) pheres on I educed iro soil color of (C5) essed Plan osition (D2 ard (D3) perch H20 hic Relief ( est (D5) / dominants	t 2 are required)  (9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C4) in (C4)  (b)  (c)  (c)  (c)  (c)  (c)  (c)  (c



Site 131: Soil, July 20, 2017



Site 131: Soil, July 20, 2017





Site 131: Vegetation, looking north on July 20, 2017



Site 131: Vegetation, looking west on July 20, 2017

Project: Palmer VMS	Borough/0	City: JNU/Haines	5	Date: 7-20-2017
Applicant/Owner: (anstantare				Sampling Point #: 132
Investigator(s): dong   mell; ex	in annundami	Firm: HDR	R Alaska, Inc.	
	1. 136. 2899 ± 'N			on map? Field Map #:
Subregion (circle one): (SE) Southcentral				
Local relief: Shape across slope linea / c				
Photo nos./descriptions: 4/9/4/4 Soil				
Are climatic / hydrologic conditions on the	·	_ / _		
Are Vegetation , Soil , or Hydrolog	av N significantly disturbed?	Are "Normal Circums	stances" present? Ye	es No
Are Vegetation N, Soil N, or Hydrolog				
SUMMARY OF FINDINGS	g, <u>r</u> natarany problemaso.	ii iioooog orpioni on		
	Yes _ No			
	Yes No	Is the sampled area	V / N-	
	res V No	within a wetland?	Yes No _ Remarks (e.g., ma	
VEGETATION (Use scientific names.) E	stimate absolute % cover (not r		otal >100%. Use 201 Dominance Test wo	
Tree Stratum (dbh≥ 3*)				
Species Cov.% Dom? Ind.		-	Number of Dominant That are OBL, FACW	
1	5			
2	6		Fotal Number of Dom Species Across All St	America
3			ppoles norosa mi o	(B)
	ree Cover.		Percent of Dominant	
TO CALL THE	20 COVE.		That are OBL, FACW Prevalence Index w	
50% of total cover:	20% of total cover:			
Sapling/Shrub Stratum (woody plants < 3		-	Total % Cove	er of: Multiply by:
Abs.Cov.% Dom? Ind 1. Salix bar 30 7 FAL			OBL species	Ø X1= Ø
2	C 7	1 1	ACW species	20 X2= 40
3	8		AC species 1	27 x3= 381
4	10		ACU species	18 X4= 192
5	11		JPL + NL species _	- X5= -
6	12		Column Totals:	
Total Sapting/Shn	ub Cover 30		=	
	20% of total cover:	6	Prevalence Index	c=B/A= 3.14
Herb Stratum	2070 01 10181 00401.		T TOTALOTIOS ITICES	
Abs.Cov.% Dom? Ind.	. Abs. Cov.	% Dom? Ind.		
	C 12.	7	Hydrophytic Vegeta	ition Indicators:
2. Senece trang 20 FAC	EW13.			
3 Arrocks Anto B FAC	U 14.	-	N Prevalence In	
71	· <b>U</b> 15		11010100110	301 10 3010
	<u> </u>			Adaptations (Provide supporting
	とU17 レ 18.			arks or on a separate sheet)
8. Carrot - Angelin?	19		Problematic H	lydrophytic Vegetation <sup>†</sup> (Explain)
9	20.	11000-1100		
10.	21			soil and wetland hydrology must
11	22.			sturbed or problematic.
Total He	orb Cover: 165		74	9 2
50% of total cover: 82.5		33	Hydrophytic	/
Circular 1/10-ac plot $\sqrt{}$ or other plot din		· OX	/egetation `	Yes No
% Cover of Wetland Bryophytes			Present?	
(where applicable)				
Remarks:				
Remarks:				

Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location:  Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherw Standard Indicators:  Y Histosol or Histel (A1) (≥16°organic surface, set'd during wet period of growing season)  N Histic Epipedon (A2) (6-16° organics, set'd, underlain by mineral soil with chroma s2)  Hydrogen Sulfide (A4) (within 12° of ground surface; @ in this pit  N Thick Dark Surface (A12)  N Alaska Gleyed (A13)  N Alaska Gleyed (A13)  N Alaska Gleyed (A13)  N Alaska Gleyed (A14)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: Nonc Depth (Inches)  Comments:  1. 2. 3.  YDROLOGY  Wettand Hydrology Indicators (check ones that apply, measure from soil surface):  N Surface Water (A1)  N Surface Soil Cracks (B6)  N Water Marks (B1)  N Sparsely Vegetated Concave Surface (B8)  N Surface Water (B1)  N Marl Deposits (B15)  N Stur	PL = Pore Lining, R se noted):  3 One indicate one primary hydrology, a position mus or problema 4 Give details	Remarks for use comment number  RC = Root Channel, M = Mati for of hydrophytic vegetation, indicator of wetland an appropriate landscapes to be present unless disturbe
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains *Location:   Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains *Location:   Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherw   Standard Indicators:	Pt. = Pore Lining, R se noted):  3 One indicate one primary hydrology, a position must or problema 4 Give details	RC = Root Channel, M = Mate and an appropriate landscape at be present unless disturbe tic.
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location:  Hydric Soli Indicators (check ones that apply, measure from top of mineral layers unless otherw indicators indicators:    Histosol or Histal (A1) (≥16° organic surface, sal'd during wet period of growing season)   Histic Epipedon (A2) (8-16° organics, sat'd, underlath by mineral soil with chroma ≤2)   Malaska Color Change⁴ (TA4)     Hydrogen Sulfide (A4) (within 12° of ground surface;	Pt. = Pore Lining, R se noted):  3 One indicat one primary hydrology, a position mus or problema 4 Give details	cor use comment number  acc = Root Channel, M = Mate  cor of hydrophytic vegetation, indicator of wetland and an appropriate landscape at be present unless disturbe tic. s of color change in Remarks
Type: C = Concentration, D = Depietion, RM = Reduced Matrix, CS=Coated Sand Grains <sup>2</sup> Location:  Hydric Soli Indicators (check ones that apply, measure from top of mineral layers unless oftnerw  Standard Indicators:    Histosol or Histel (A1)   (≥16° organic surface, saf'd during wet period of growing season)   Soli Hydrogon Sutifice (A4)   (within 12° of ground surface;   Maiska Color Change (TA4)	PL = Pore Lining, R se noted):  3One indicat one primary hydrology, a position mus or problema 4Give details	or of hydrophytic vegetation, indicator of wetland and an appropriate landscapes to be present unless disturbetic.
"Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains *Location: Hydric Soli Indicators (check ones that apply, measure from top of mineral layers unless otherwick indicators:    Histosol or Histel (A1) (≥16*organic surface, sal*d during wet period of growing season)   Malaska Color Change* (TA4)     Histosol or Histel (A1) (≥16*organic surface, sal*d during wet period of growing season)   Malaska Color Change* (TA4)     Histosol or Histel (A1) (≥16*organic surface, sal*d during wet period of growing season)   Malaska Color Change* (TA4)     Malaska Color Change* (TA4)   Malaska Alpine Swales (TA5)     Malaska Alpine Swales (TA5)   Malaska Redox with 2.5Y Hue   Malaska Gleyed Without Hue 5Y or Redd Underlying Layer   Malaska Gleyed (A13)   Malaska Redox (A14)   Malaska Gleyed Without Hue 5Y or Redd Underlying Layer   Other (e.g., see p.91 of 2007   Supplement; explain in Remarks)     Malaska Gleyed (A13)   Drainage Class:	Pt. = Pore Lining, R se noted):  3One indicat one primary hydrology, a position mus or problema 4Give details	or of hydrophytic vegetation, indicator of wetland and an appropriate landscape at be present unless disturbe tic. s of color change in Remarks
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd underlain by mineral soil with chroma s2)   N   Alaska Color Change⁴ (TA4)	Pt. = Pore Lining, R se noted):  3One indicat one primary hydrology, a position mus or problema 4Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscape to be present unless disturbetic.
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16° organic surface, sat'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sat'd, undertain by mineral soil with chrome s2)   N   Alaska Alpine Swales (TA5)   N   Alaska Redox with 2.57 Hue   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed (A13)   N   Alaska Gleyed Pores (A15)   N   Alaska Gleyed Without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without Hue 57 or Redd Underlying Layer   N   Alaska Gleyed without	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscape to be present unless disturbetic.
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd, undertain by mineral soil with chrome s2)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Gleyed (A4) (within 12° of ground surface;	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation, indicator of wetland and an appropriate landscape at be present unless disturbe tic. s of color change in Remarks
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd, undertain by mineral soil with chrome s2)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Gleyed (A4) (within 12° of ground surface;	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscape to be present unless disturbetic.
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥18°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-18° organics, sai'd, undertain by mineral soil with chroma s2)   N   Alaska Color Change⁴ (TA4)	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation, indicator of wetland and an appropriate landscape at be present unless disturbe tic. s of color change in Remarks
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd underlain by mineral soil with chroma s2)   N   Alaska Color Change⁴ (TA4)	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscape to be present unless disturbetic.
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd, undertain by mineral soil with chrome s2)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Gleyed (A4) (within 12° of ground surface;	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscapes be present unless disturbetic.
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwistandard Indicators:    Histosol or Histel (A1) (≥16°organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16° organics, sai'd, undertain by mineral soil with chrome s2)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Gleyed (A4) (within 12° of ground surface;	3 One indicate one primary hydrology, a position must or problema 4 Give details	or of hydrophytic vegetation indicator of wetland and appropriate landscapes be present unless disturbetic.
Standard Indicators:   Indicators for Problematic Hydric Solls <sup>2</sup> :   Histosol or Histel (A1) (≥16" organic surface, sai'd during wet period of growing season)   N   Histic Epipedon (A2) (8-16" organics, sat'd, undertain by mineral soll with chroma ≤2)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Alpine Swales (TA5)   N   Alaska Gleyed without Hue 5Y or Redd Underlying Layer   N   Alaska Gleyed without Hue 5Y or Redd Underlying Layer   N   Alaska Gleyed Without Hue 5Y or Redd Underlying Layer   N   Alaska Gleyed Pores (A15)   N   Alaska Gleyed Without Hue 5Y or Redd Underlying Layer   N   N   N   N   N   N   N   N   N	<sup>3</sup> One indicat one primary hydrology, a position mus or problema <sup>4</sup> Give details	indicator of wetland ind an appropriate landscape it be present unless disturbe tic. s of color change in Remarks
Histosol or Histel (A1) (2-16" organic surface, sai'd during wet period of growing season)  N Histic Epipedon (A2) (8-16" organics, sai'd, underlain by mineral soll with chrome s2)  Hydrogen Sulfide (A4) (within 12" or ground surface; @ " in this pit  N Alaska Gleyed without Hue 5Y or Redd Underlying Layer  N Alaska Gleyed (A13)  N Alaska Gleyed (A13)  N Alaska Gleyed Pores (A15)  N Alaska Gleyed Pores (A15)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type:	one primary hydrology, a position mus or problema <sup>4</sup> Give details	indicator of wetland ind an appropriate landscape it be present unless disturbe tic. s of color change in Remarks
Sat'd during wet period of growing season)  N Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma <2)  N Alaska Alpine Swales (TA5)  N Alaska Redox with 2.5Y Hue  N Alaska Gleyed without Hue 5Y or Redd Underlying Layer  N Alaska Gleyed (A13)  N Alaska Gleyed (A13)  N Alaska Gleyed (A14)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: None Depth (inches)  Comments:  **Torniary Indicators (any one indicator is sufficient)  N Surface Water (A1)  N Surface Soil Cracks (B6)  High Water Table (A2) (w/in 12")  N Sparsely Vegetated Concave Surface (B8)  N Marl Deposits (B15)  N Alaska Alpine Swales (TA5)  N Alaska Alpine Swales (TA5)  N Alaska Redox with 2.5Y Hue  N Alaska Gleyed without Hue 5Y or Redd Underlying Layer  Other (e.g., see p.81 of 2007  Supplement; explain in Remarks)  N Supplement; explain in Remarks)  N Surface Soil Map Unit Name:  N Water Marks (B1)  N Marl Deposits (B15)  N Stur	one primary hydrology, a position mus or problema <sup>4</sup> Give details	indicator of wetland ind an appropriate landscape it be present unless disturbe tic. s of color change in Remarks
Undertain by mineral soll with chroma ≤2)  Hydrogen Sulfide (A4) (within 12*of ground surface; @* in this pit  N	hydrology, a position mus or problema <sup>4</sup> Give details	and an appropriate landscape to be present unless disturbe tic. s of color change in Remarks
Hydrogen Sulfide (A4) (within 12*of ground surface; @*'in this pit	or problema <sup>4</sup> Give details	tic. s of color change in Remarks
Alaska Gleyed (A12)  N Alaska Gleyed (A13)  N Alaska Gleyed (A14)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: None  Depth (inches)  Comments:  Comments:	<sup>4</sup> Give details	s of color change in Remarks
N   Thick Dark Surface (A12)	er	
Alaska Gleyed (A13)  Alaska Redox (A14)  Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: None Depth (inches)  Comments:  Comme		Yes_VNo
Alaska Gleyed (A13)  N Alaska Redox (A14)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type:  Depth (inches)  Comments:  Comme	Soil Present?	Yes _ No_
Alaska Redox (A14)  N Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: None Soil Map Unit Name: Hydric  Comments:  1. 2. 3.  YDROLOGY  Netland Hydrology Indicators (check ones that apply, measure from soil surface): Seconds  Primary Indicators (any one indicator is sufficient)  N Surface Water (A1)  High Water Table (A2) (w/in 12")  Sequence Soil Cracks (B6)  N Surface Water (A3) (w/in 12")  Sequence Soil Cracks (B6)  N Surface Water (A3) (w/in 12")  N Sparsely Vegetated Concave Surface (B8)  N Sequence Soil Cracks (B15)	Soil Present?	Yes_V No_
Restrictive Layer (if present)  Type: Nonc Soil Map Unit Name: Hydric Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Wetland Hydrology Indicators (check ones that apply, measure from soil surface): Seconds Notation Visible on Aerial Imagery (B7)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Name Class: PD  Soil Map Unit Name: Hydric  Hydric  Hydric  Notation  Not	Soil Present?	Yes _ No _
Type: Nonc   Soil Map Unit Name: Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Hydric   Depth (inches)   Hydric   Depth (inches)   Seconds   Seconds   Nonce   Seconds   Nonce   N	Soil Present?	Yes No
Type: Nonc   Soil Map Unit Name: Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Hydric   Depth (inches)   Soil Map Unit Name:   Hydric   Depth (inches)   Hydric   Depth (inches)   Seconds   Depth (inches)   Nonce   Seconds   Nonce   Nonce   Seconds   Nonce   N	Soil Present?	Yes _ No
Depth (inches)  Comments:  Depth (inches)  Depth (inches)  Comments:  Depth (inches)  Depth (inc		
Primary Indicators (any one indicator is sufficient)  Note that apply, measure from soil surface):  Note that apply		
V Drift Deposits (B3) N Dry-Season Water Table (C2) (w/in 24*) N Geo	ry Indicators (at leaser-Stained Leaves in age Patterns (B10 d' Rhizospheres of ence of Reduced liss. α,α or soil color Deposits (C5) ted or Stressed Pla	(B9)  I)  In Living Roots (C3) (within 12* ron (C4) change w/in 12*)
	morphic Position (C	
N, Algal Mat or Crust (B4)  Other (explain)  N Sha	low Aquitard (D3) n 24", can perch H2	
	Neutral Test (D5)	
	OBL+FACW dominan	ts > # FACU+UPL dominants)
ield Observations (in. from ground surface):		
urface Water Present? Yes No Depth of water (in.)		
fater Table Present? Yes ✓ No Depth to water (in.) 12		
Seeping in at that depth but not yet filled?: 9 5000		
aturation Present? Yes V No Depth to sat. (in.) 2 Wetland		nt? Yes 😕 No
ncludes capillary fringe) Epi Endo Unknown	Hydrology Prese	
escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	7.14	
emarks:	7.14	X



Site 132: Soil, July 20, 2017



Site 132: Soil, July 20, 2017





Site 132: Vegetation, looking north on July 20, 2017



Site 132: Vegetation, looking south on July 20, 2017

pplicant/Owner: Constantine  Borough/City: 14-45	Date: 7 · 20 · 2017  Sampling Point #: 134
	: HDR Alaska, Inc.
	on GPS #: Marked on map? Field Map #:
ubregion (circle one): (SE)Southcentral Western Aleutian Interior Northern Land	The state of the s
ocal relief: Shape across slope: linear / convex / concave Shape up/downslope: linear /	
hoto nos./descriptions: 49/31 Soil ; 432-435 NESW Camera #: M	
re climatic / hydrologic conditions on the site typical for this time of year? Yes: Very No:	
re Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Cir	
re Vegetation M., Soil N., or Hydrology N naturally problematic? If needed, explain	in answers here.
UMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No Is the sampled a	irea /
-lydric Soil Present? Yes No within a wetland	
Wetland Hydrology Present? Yes V No No	Remarks (e.g., marginal?):
EGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % of	
Free Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
Picco sit 85 Y FM. U 5.	That are OBL, FACW, or FAC:
Buga het 10 y FAC 6.	Total Number of Dominant
Tsuga mest 13 Y FAC 7.	Species Across All Strata: 15
8	Percent of Dominant Species
Total Tree Cover: 23	That are OBL, FACW, or FAC: 86.6 % (A
50% of total cover: 20% of total cover:	Prevalence Index workshest:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	
Alaw Sin 25 Y FAC 7. Vib chile 8 FAC	и обсеронее — — — — — — — — — — — — — — — — — —
Mens for 10 y FACU 8. Sorbus sibh 2 FAC	141 100
Cornus Gan 3 FAC 9. Tsuga Let 10 y FAC	
Salic Sit 15 Y FAC 12 Asuga ment 5 FAC	/
Test me to co	Column Totals: <u>260 (A)</u> <u>729 (</u>
Total Sapling/Shrub Cover: 104	
50% of total cover20% of total cover	Prevalence Index = B/A = 2.8
erb Stratum	
Abs. Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
Equi Alvo 15 Y OBL 12 False Hell (Versir) 5 FAC	
at the second se	Dominance Test is>50%
Strept amp 5 FR. U 15. Tracella TV 3 FAC	
Shript amp 5 FACW 14. List cold T FAC Stript amp 5 FACW 15. Tingella th 3 FAC Val Sitch 15 Y FAC 16. GARK &P.O 2 — Sen triang 0 Y FACW 17. W — — — — — — — — — — — — — — — — — —	
Sen triang 0 y FACW 17. 4	Morphological Adaptations¹ (Provide support data in Remarks or on a separate sheet)
Plat defata 7 FACW18. Fauria city T OBL	Maria de la companya della companya
Para pal 5 FALW 19 geranum er 3 FAL	Problematic Hydrophytic Vegetation' (Explain
Leptace Mr 8 4 FACW 20.8	
D. Trient sur V THOU 21.	¹ Indicators of hydric soil and wetland hydrology mu
Aron delph 2 FAC 22	be present unless disturbed or problematic.
Total Herb Cover: 150	
50% of total cover: 20% of total cover: 34	Hydrophytic
rcular 1/10-ac plot or other plot dimension: % of bare ground:	Vegetation Yes No
Cover of Wetland Bryophytes % Total Cover of Bryophytes %	Liganiti
(where applicable)	
emarks:	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	SOIL			3						Sampling Point #:	134
Secondary Indicators	Profile Description: (Des	cribe to the dep	th needed t	o document the i	ndicator	or confirm	the abse	ence of indi	cators)		
Type: C = Concentration, D = Depisition, RM = Reduced Matrix, CS=Coated Sand Grains *Location: PL = Pore Lining, RC = Root Channel, M = Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise notes):	Depth Horizon	Soil Matrix		Re	dox Fea	tures	1		α,α dip.		
Hydric Soll Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):  Standard Indicators:  Jeffeld of Pristel (A1) (c15° organic surface, sat'd during wat period of growing season)  Jeffeld (Cappedon (A2) (c15° organics, sat'd underlain by mineral soil with chrome \$\frac{1}{2}\$  Histot Epipedon (A2) (c15° organics, sat'd underlain by mineral soil with chrome \$\frac{1}{2}\$  Hydroge Sulfide (A4) (c15° organics, sat'd underlain by mineral soil with chrome \$\frac{1}{2}\$  Hydroge Sulfide (A4) (with 12° organics, sat'd underlain by mineral soil with chrome \$\frac{1}{2}\$  Hydroge Sulfide (A4) (with 12° organics sat'd underlying Layer  Other (e.g., see p. 81 of 2007  Supplement; explain in Remarks)  Drainage Class:  Other (e.g., see p. 81 of 2007  Supplement; explain in Remarks)  Drainage Class:  Hydric Soil Present?  Yes \( \frac{1}{2}\) No_  Depth (inches)  Drainage Class:  Hydric Soil Present?  Yes \( \frac{1}{2}\) No_  Drainage Patterns (B10)  Y Surface Water (A1)  Y Surface Water (A1)  Y Surface Water (A1)  Y Sparsely Vegetated Concave Surface (B8)  Y Sufface Soil Cracks (B6)  Y Sufface Soil Cracks (B6)  Y Surface Water (A1)  Y Sedment Deposits (B1)  Merit Deposits (B1)  Y Sufface Soil Cracks (B6)  Y Drift Deposits (B2)  Algel Mat or Crust (B4)  Y Other (explain)  Water Table (A2) (win 12°)  Valer Table Present?  Yes \( \frac{1}{2}\) No Depth of water (in.) \( \frac{1}{2}\) Microtopographic Relief (D4) (caused by water)  Field Observations (in. from ground surface):  F		olor (molst)	<u>%</u>	Color (moist)	<b>%</b>	Type <sup>1</sup>	Loc²	Texture	4		
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):  Indicators for Problematic Hydric Soils?  Histos Epidedin (A2) (e-16" organics surface, said during wet period of growing assesson)  Histos Epidedin (A2) (e-16" organics, sard, undertain by mineral soil with chrone \$2)  Hydrogen Suilide (A4) (with 12" or ground surface):  Hydrogen Suilide (A4) (within 12" or ground surface):  In histos Epidedin (A2) (e-16" organics, sard, undertain by mineral soil with chrone \$2)  Hydrogen Suilide (A4) (within 12" or ground surface):  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A14)  Alaska Gleyed (A13)  Alaska Gleyed (A14)  Alaska Gleyed (A15)  Alaska Gleyed (A					=		Ξ				
Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):  Standard indicators:  Indicators for Problematic Hydric Soils?  Histos Epidedin (A2) (e-16" organics surface, said during wet period of growing season)  Histos Epidedin (A2) (e-16" organics, sard, underlain by mineral soil with chrome \$2)  Hydrogen Sulfide (An) (with 12" or ground surface);  Hydrogen Sulfide (An) (with 12" or ground surface);  Hydrogen Sulfide (An) (with 12" or ground surface);  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks)  Thick Dark Surface (A12)  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks)  Thick Dark Surface (A15)  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks)  Thick Dark Surface (A15)  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks)  Thick Dark Surface (A15)  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks)  Thick Dark Surface (A15)  Alaska Gleyed without Hue SY or Redder Underlying Layer  Other (e.g., see p 81 of 2007)  Supplement; explain in Remarks  Soil Map Unit Name:  Hydric Soil Present? Yes No_  Depth of Mark Darks (B6)  Wetland Hydrology Indicators (check ones that apply, measure from soil surface):  "Vetar Stained Leaves (B9)  "Vetar Stained Leaves (B9)  "Vetar Stained Leaves (B9)  "Vetar Stained Leaves (B9)  "Vetar Marks (B1)  "Vetar Stained Leaves (B9)  "Vetar Marks (B1)											
Indicators for Problematic Hydric Solis*:   Yes   Histosco or Histel (A1) (≥16*organic aurface, asrd, underland by mineral solf during wite period of growing season)   Histosco period (A2) (9-16* organics, sard, underland by mineral solf with chrome st2)   Alaska Alpine Swales (TA5)   Alaska Alpine Swales (TA5)   Alaska Redox with 2.5Y Hue   Alaska Gleyed (A1) (within 12*orf ground surface, @ ** in this Vite chrome st2)   Alaska Redox with 2.5Y Hue   Alaska Gleyed (A13)   Alaska Gleyed (A13)   Alaska Gleyed (A13)   Alaska Gleyed (A13)   Alaska Gleyed Pores (A15)   Alaska Gleyed Without Hue 5Y or Redder Underlying Lagrand Pores (A15)   Alaska Gleyed Without Hue 5Y or Redder Underlying Lagrand Pores (A15)   Alaska Gleyed Without Hue 5Y or Redder Underlying Lagrand Pores (A15)   Alaska Gleyed Without Hue 5Y or Redder Underlying Lagrand Pores (A15)   Alaska Gleyed Without Hue 5Y or Redder Underlying Lagrand Pores (										= Root Channel, M	= Matr
Y Histosol or Histel (A1) (215'organic surfaces and during well period for growing season)   Alaska Color Change* (TA4)   Alaska Change* (TA5)   Alaska Chang		ook ollos tilat a	рріў, піваа			-			ea):		
# Histic Epipedron (A2) (e.) (e.) * organica, satid, underlain by mineral soll with crime \$2\) # Widelight (Properties, and underlain by mineral soll with crime \$2\) # Widelight (Properties) # Alaska Redox with 2.5Y Hue # Alaska Redox (A14) # Alaska Redox (A15) # Alaska Redox (A15) # Alaska Redox (A16) # Alaska Redox (A17) # Alaska Redox (A18) # Alaska Redox (A19) #		(≥16"organic su	ırfaca.						<sup>3</sup> One indicato	r of hydrophytic yeae	tation
Alaska Alpine Swales (TAS)  Hydrogen Sulfida (Af) (within 12rd ground surface); (2)  Hydrogen Sulfida (Af) (within 12rd ground surface); (3)  Alaska Gleyed (A13)  Alaska Gleyed without Hus 5Y or Redder Underlying Layer  Other (e.g., see p. 91 of 2007  Supplement; explain In Remarks)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A14)  Alaska Gleyed (A13)  Alaska Gleyed (A14)  Alaska Gleyed (A14)  Alaska Gleyed (A15)  Restrictive Layer (if present)  Type: NoNE  Depth (inches)  Comments:  1.  2.  3.  Drainage Class:  Soil Map Unit Name:  Drainage Class:  Soil Map Unit Name:  Hydric Soil Present? Yes No_ Depth (Inches)  Drainage Class:  None Meter-Stained Leaves (B9)  Primary Indicators (and explain)  Alaska Redox with 2.5Y Hue  Alaska Gleyed without Hus 5Y or Redder Underlying Layer  Other (e.g., see p. 91 of 2007  Supplement; explain In Remarks)  Hydric Soil Present? Yes No_ Depth of water (A1)  None Depth of water (A1)  Yes Sectional (A1)  Water Table (A2) (win 12")  Alaska Redox with 2.5Y Hue  Alaska Gleyed without Hus 5Y or Redder Underlying Layer  Other (e.g., see p. 91 of 2007  Supplement; explain In Remarks)  Hydric Soil Present? Yes No_ Depth of water (A1)  None Depth of water (A1)  Yes Sectional (A1)  Water Stained Leaves (B9)  Drainage Patterns (B19)  None Deposits (B19)  Non	, sat'd during wet perio	od of growing seas	son)	Alaska	Color Ch	iange" (TA	4)		one primary ir	ndicator of wetland	CV.
Surface: (a) **In this pit **Alaska Gleyed without Hue 5Y or Radder Underlying Layer Underlying Layer Underlying Layer Other (e.g., see p. 81 of 2007 Supplement; explain in Remarka)  **Alaska Gleyed (A13) **Depth (Inches) **Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth of water (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth of water (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth of water (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth to sat (Inches) **Soil Map Unit Name: Hydric Soil Present? Yes No_Depth Soil Map Unit Name: Hydric Soil Present? Yes No_Depth Soil Name: H	underlain by mineral	soll with chroma s	2)	1					position must or problemation	be present unless di	sturbe
Alaska Gleyed (A13)  Alaska Gleyed (A14)  Alaska Gleyed Pores (A15)  Restrictive Layer (if present)  Type: Non/L  Depth (no., see p. 91 of 2007 Supplement; explain in Remarks)  Phydric Soil Present? Yes No_ Depth (inches)  Comments:  1. 2. 3.  YDROLOGY  Wetland Hydrology Indicators (check ones that apply, measure from soil surface):  Primary Indicators (env one indicator is sufficient)  Y Surface Water (A1)  Y Signare Water (A1)  Y Sign	surface; @"	n this pit	DUING	Alaska F	Redox w	ith 2.5Y H	ne		Give details	of color change in Re	marks
Alaska Redox (A14)    Alaska Redox (A14)   Supplement; explain in Remarks)   Alaska Gleyed Pores (A15)   Restrictive Layer (if present)   Type:   Move   Soil Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   Drainage Class:   Po     Depth (inches)   Soil Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   No   Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   No   Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   No   Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   No   Map Unit Name:   Hydric Soil Present?   Yes   No     Depth (inches)   No   Map Unit Name:   Hydric Soil Present?   Yes   No     No   Map	~	12)		Unde			€ 5Y or R	edder			
Restrictive Layer (if present) Type: NoNE Depth (Inches) Comments: 1. 2. 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 1. 2. 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 1. 2. 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 1. 2. 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 2. 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 3.  PYDROLOGY Wetland Hydrology Indicators (check ones that apply, measure from soil surface): 3.  Primary Indicators (at least 2 are required)  N. Water-Stained Leaves (B9)  Presence of Reduced Iron (C4) (pos. a., or or soil color change with 12")  N. Water Marks (B1) N. Wate	N Alaska Redox (A14)	'A15\		Outer (e	.g., see p ment; ex	.91 of 2007 plain in Rem	arks)				
Type: No/Le   Soil Map Unit Name:   Hydric Soil Present?   Yes   No    Comments:				Dreinage Clas	e	20				Tiga scare an	C12
Comments: 1. 2. 3.  **PDROLOGY**  Wetland Hydrology Indicators (check ones that apply, measure from soil surface):  **Primary Indicators**  **Purple Wetland Hydrology Indicators (check ones that apply, measure from soil surface):  **Primary Indicators**  **Purple Wetland Hydrology Indicators (surface):  **Primary Indicators**  **Purple Wetland Hydrology Indicators (surface):  **Purple Wetland Laves (se)  **Purple Wetland Laves (surface):  **P	ACTUAL CONTRACTOR AND ADDRESS OF THE PARTY O						Hv	dde Soil P	resent?	Yes V No.	8.
Comments: 1. 2. 3.  MDROLOGY  Wetland Hydrology Indicators (check ones that apply, measure from soll surface):  Primary Indicators (any one indicator is sufficient)  Y Surface Water (A1)  Y Surface Soll Cracks (B6)  Y High Water Table (A2) (win 12")  M Water Marks (B1)  M Water Marks (B1)  M Water Marks (B1)  M Water Marks (B1)  M Dry-Season Water Table (C2) (win 12")  M Dry-Season Water Table (C2) (win 12")  M Dry-Season Water Table (C2) (win 24")  M Algal Mat or Crust (B4)  M Iron Deposits (B5)  Witer Stallow Aquitard (D3)  Microtopographic Relief (D4) (caused by water)  M Indicators (at least 2 are required)  M Water Stained Leaves (B9)  Double on Aerial Imagery (B7)  M Presence of Reduced Iron (C4)  (pos. q. q. or soll color change win 12")  Salt Deposits (C5)  Salt Deposits (C5)  Salt Deposits (C5)  Stunded or Stressed Plants (D1)  Y Geomorphic Position (D2)  Indicators (at least 2 are required)  Water Stained Leaves (B9)  Double of Reduced Iron (C4)  (pos. q. q. or soll color change win 12")  Salt Deposits (C5)  Salt Deposits (C5)  Salt Deposits (C5)  Salt Deposits (C5)  Microtopographic Relief (D4) (caused by water)  M Indicators (at least 2 are required)  Water Stained Leaves (B9)  Double Orall Relief (D4)  Water Stained Leaves (B9)  Do								-110 0011 1	i Coonti	103 110	
Primary Indicators (any one Indicator is sufficient)  Y. Surface Water (A1)  Y. Surface Soll Cracks (B6)  Y. High Water Table (A2) (w/in 12")  Y. Saturation (A3) (w/in 12")  Water Marks (B1)  M. Marl Deposits (B15)  M. Sediment Deposits (B2)  M. Dry-Season Water Table (C2) (w/in 24")  M. Algal Mat or Crust (B4)  M. Iron Deposits (B5)  Water Present?  Y. Surface Soll Cracks (B6)  M. Marl Deposits (B5)  M. Marl Deposits (B15)  M. Dry-Season Water Table (C2) (w/in 12")  M. Other (explain)  M. Other (explain)  M. Depth of water (in.)  Seeping in at that depth but not yet filled?:  Saturation Present?  Y. Surface Soll Cracks (B6)  M. Dry-Season Water (in.)  M. Water Statined Leaves (B9)  M. Dry-Season Cracks (B6)  M. Presence of Reduced iron (C4)  (pos. q. or soll color change w/in 12")  Satl Deposits (C5)  Satl Deposits (C5)  Y. Stunted or Stressed Plants (D1)  M. Geomorphic Position (D2)  M. Microtopographic Relief (D4) (caused by water)  M. Marl Poposits (B5)  M. Depth for water (in.)  Seeping in at that depth but not yet filled?:  M. Marl Poposits (B5)  M. Depth to water (in.)  M. Marl Deposits (B15)  M. Depth to water (in.)  M. Marl Deposits (B15)  M. Marl Deposits (B15)  M. Marl Deposits (B15)  M. Microtopographic Relief (D4) (caused by water)  M. Marl Poposits (B15)  M. Microtopographic Relief (D4) (caused by water)  M. Microtopographic Relief (D4) (caused by	2. 3.						1075-75	- 10			
Surface Water (A1)				, measure from	soil su	rfaçe):	Seco	ondary Indi	cators (at leas	t 2 are required)	1
High Water Table (A2) (w/in 12")					- 0	- Vene			,	•	
Y Saturation (A3) (w/in 12")  N Sparsely Vegetated Concave Surface (B8)  N Water Marks (B1)  N Marl Deposits (B15)  N Sediment Deposits (B2)  N Dry-Season Water Table (C2) (w/in 12")  N Other (explain)  N Dry-Season Water Table (C2) (w/in 24")  N Dry-Season Water Table (C2) (w/in						14					-
A Sediment Deposits (B2)    Drift Deposits (B3)	Y Saturation (A3) (w/in 12"	)	N Sparsel	ly Vegetated Cor				Presence d	of Reduced Iro	n (C4)	hin 12")
Drift Deposits (B3)   Dry-Season Water Table (C2) (w/in 24")   Geomorphic Position (D2)   Modern (Explain)			-		(04) 4	400	V				
Algal Mat or Crust (B4)  Fron Deposits (B5)  Fron Deposi	17						1.4				
Iron Deposits (B5)	1.	_	1		5 (CZ) (V	Will.24 )				9	
FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants	En la	-	<u>/</u> Other (a	explain)			1	(w/in 24", d	an perch H20		
Surface Water Present? Yes No Depth of water (in.) 4  Vater Table Present? Yes No Depth to water (in.) 4  Seeping in at that depth but not yet filled?: 7  Saturation Present? Yes No Depth to sat. (in.) Water to sat. (in.) Water to sat. (in.) Water to sat. (in.) Seeping in at that depth but not yet filled?: 7  Saturation Present? Yes No Depth to sat. (in.) Water to sat. (in.) No	iron Deposits (B5)							FAC Neutra	al Test (D5)		ionte)
Vater Table Present? Yes No Depth to water (in.) 4  Seeping in at that depth but not yet filled?: 7  Saturation Present? Yes No Depth to sat. (in.) Wetland Hydrology Present? Yes No Includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Field Observations (in. from g	round surface)	:					(			unta)
Seeping in at that depth but not yet filled?: Y Saturation Present? Yes No Depth to sat. (in.) Wetland Hydrology Present? Yes No includes capillary fringe) Endo Unknown Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Surface Water Present?	Yes _ V	No	Depth of water	(in.) <u></u>	1	4				•
Saturation Present? Yes No Depth to sat. (in.) Wetland Hydrology Present? Yes No includes capillary fringe) Endo Unknown  Describe Recorded Data (stream gauge, monitoring well, serial photos, previous inspections), if available:	Vater Table Present?	Yes	No	Depth to water	(in.) 6						
includes capillary fringe)  Epi Endo Unknown  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		,	in at that de		_					/	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Saturation Present?	Yes	No		in.) <u> </u>	).	Wett	and Hydro	logy Present	? Yes No	3
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	includes capillary fringe)		* .						1.4		
Remarks:	pescribe Recorded Data (stre	am gauge, moi	nitoring wel	i, aerial photos, i	previous	inspection	ns), if ave	ailable:			11
	emarks:				-					4	
	- 0 3										





Site 134: Soil, July 20, 2017



Site 134: Soil, July 20, 2017





Site 134: Vegetation, looking north on July 20, 2017



Site 134: Vegetation, looking south on July 20, 2017

Project: Palmer VMS Borough/City: JNU/Hair	nes Date: 7-20-2017
Applicant/Owner: Constantivo	Sampling Point #: 13 S
	IDR Alaska, Inc.
Lat. (dec.°) 59.42373 Long. 136, 24394 ± 'NAD 83 Recorded of	GPS # Werked on man? / Field Man #
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landfol	Remnant Step Slope (%): Aspect: S
Local relief: Shape across slope: linear / convex concave Shape up/downslope: linear / convex concave	
Photo nos./descriptions: 486-87 Soil; 438-441 NESW Camera #: MO	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes:   No:	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circu	
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain:	
SUMMARY OF FINDINGS	answers here.
Hydrophytic Vegetation Present? Yes √ No	
Is the sampled are	
The state of the s	
	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % car	total >100%. Use 2012 indicator status.  Dominance Test worksheet:
Tree Stratum (dbh≥ 3*)	Dollarica Test Workshear.
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
1. top tri (wrong statun; see belgin)	That are OBL, FACW, or FAC: (A)
2	Total Number of Dominant Species Across All Strata:
4.	Species Across Air Strata. (B)
Total Tree Cover:	Percent of Dominant Species
	That are OBL, FACW, or FAC: (A/B)  Prevalence Index worksheet:
50% of total cover: 20% of total cover:	
Sapling/Shrub Stratum (woody plants < 3" dbh)  Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	Total % Cover of: Multiply by:
1. Alons sin 40 Y FAC 7. Salie bar 10 FAC	OBL species 2 X1= 2
2 Posa piso 10 NL 8 Salix alex 3 FAC	FACW species 20 X2=40
3 Pep tri 15 Y FACU & Salix mert 2 PACW	FAC species
4. Salix com 8 FAC 10. VIb edule 3 FACU	FACU species 38 X4= 152
5. Sheperilia CAN 5 RACH 11.	UPL + NL species 12 X5= 60
6.Amel aln 2 UPL 12.	Column Totals: 148 (A) 482 (B)
Total Sapling/Shrub Cover: 48	
50% of total cover: 19 20% of total cover: 19 6	Prevalence Index = B/A = 3.26
Herb Stratum	
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.  1. Pyrola asa 5 7 PALVI 12. Faci arv 7 Y FAC	
1. Tyrola asa 5 7 PACM 12 Equi arv 7 7 FAC  2. Eoi and 2 FACM 13. Equi Noward 10 y FACW	Hydrophytic Vegetation Indicators:
3. Soli-fee Der 2 FAC VI 14. Packera pauc 2 FAC	Y Dominance Test is>50%
4. Chim © 2 15	N Prevalence Index is ≤3.0
5.61 to flore 3- FAC 16.	Morphological Adaptations <sup>1</sup> (Provide supporting
6.014 sec 2 + +CU 17.	data in Remarks or on a separate sheet)
7. Tarax off 2 FACU18.	Problematic Hydrophytic Vegetation (Explain)
8. O unk America 2 FAC V 19. PAC 20.	
9. (a) can 3 PAU 20. 10. Equi prat 8 Y FACW 21.	1 Indicators of hydric call and walland hydrology must
11. Equi flu 2 OBL 22.	Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Herb Cover: 50	No. 10
	thuise white
20% of total cover.	Hydrophytic Vegetation Yes No
Circular 1/10-ac plot ✓ or other plot dimension: % of bare ground: %  Cover of Wetland Bryophytes % Total Cover of Bryophytes %  (where applicable)	Present?
Remarks: 13 19 272 (14) 10. smaller than, white tell, think, land	brokes; 50% hollan
Mybe an old floodplain Boro ground : leaf liter	
IS Army Come of Engineers	Alaska Vamion 2.0 Madified by USB

LINCOLD MARKSON PAGE		ed to document the i				,		
	Matrix		dox Fea				a,a dip. (pos/	Remarks
(in.) (opt.) Color (moi	<u>st) %</u>	Color (moist)	<u>%</u>	Type¹	Loc2	Texture	neg)	or use comment number
0-14 B1 5Y5/1 2.5Y3/1	<u>60</u> 30	15YR+/6	70	<u>C</u>	RCPL	Sil	neg	Sec. carrie
4-20 B2 5Y3/1	97	57R4/6	7		PL	Sa		15% gravel
_ 150		P	_		<b>A. Tarre</b>			U
	-8:	-	_					
		3 11 11	-		-			
			_				- 12	
Times C = Consensation D = Don	letter DM D				2			
Type: C = Concentration, D = Dep								= Root Channel, M = Ma
iydric Soll Indicators (check one	s that apply, m			- 12-20			:	
Standard Indicators: N Histosol or Histel (A1) (≥16°or		Indicators fo					s indicator	of hudges had a constat.
N Histosol or Histel (A1) (≥16"on sat'd during wet period of grow	rganic surrace, ving season)	V Alaska	Color Ct	iange <sup>4</sup> (T	A4)			of hydrophytic vegetation dicator of wetland
N Histic Epipedon (A2) (8-16" on	ganics, sat'd,	V Alaska	Alpine S	wales (T/	A5)			an appropriate landscap
undertain by mineral soil with o		1	прино О	11) 00101	,		ition must i problematic	be present unless disturbe
Hydrogen Sulfide (A4) (within surface; @ " in this pit	12 or ground	N Alaska I	Redox w	ith 2.5Y I	lue			f color change in Remark
M Thick Dark Surface (A12)			Gleyed v rlying La		ue 5Y or Re	edder		
Alaska Gleyed (A13)		✓ Other (e		*	7			
Yx Alaska Redox (A14)		Supple	ment; ex	plain in Re	merks)			
Alaska Glayed Pores (A15)								
testrictive Layer (if present)		Drainage Clas	s: W	D				,
Type: NONE		Soil Map Unit	Name:		Hyd	ric Soil Pres	ent?	Yes _ No V
Donth (inches)								
	calor By	byo. Whel	, reli	ic give	- anem	It / lach	مر لہما	volary / fordscarie
DROLOGY	Dest I I					**	*	cology / (adreaged)
DROLOGY  /etland Hydrology Indicators (che	eck ones that a	pply, measure from			Seco	ndary Indicate	ors (at least	2 are required)
DROLOGY  /etiand Hydrology Indicators (cherimary Indicators (any one indicators)	eck ones that a	pply, measure from	soil su		Seco N <sub>V</sub> V	ndary Indicate Vater-Stained	ors (at least	2 are required)
DROLOGY  /etland Hydrology Indicators (che	eck ones that a tor is sufficient)	pply, measure from	soil su	rface):	Seco N V	ndary Indicate Vater-Stained Prainage Patte	ors (at least Leaves (Berns (B10)	2 are required) 9)
Omments: 54 44 ft fled or 18 18 18 18 18 18 18 18 18 18 18 18 18	eck ones that a tor is sufficient)  V Sur	pply, measure from face Soil Cracks (B6	soil su	irface):	Seco N V N C	ndary Indicate Vater-Stained Drainage Pate Dxid'd Rhizos Presence of R	ors (at least Leaves (B erns (B10) pheres on L educed from	2 are required) 9) Living Roots (C3) (within 12 n (C4)
Omments: 57 54 for fleed or 18.  Confidence of the fleed or 18	eck ones that a tor is sufficient)  V Sur  I Inui	pply, measure from face Soil Cracks (Bo ndation Visible on Ad irsely Vegetated Con	soil su	irface):	Seco NV NV NV NV NV NV NV NV NV NV NV NV NV	ndary Indicate Vater-Stained Orainage Pate Oxid'd Rhizos Presence of R (pos. a,a or	ors (at least Leaves (B erns (B10) pheres on L educed from soil color ch	2 are required) 9) Living Roots (C3) (within 12
DROLOGY  /etland Hydrology Indicators (cherimary Indicators (any one indicators Uniformation (A1)  High Water Table (A2) (w/in 12")	eck ones that a tor is sufficient)  V Sur  I Inui	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou to Deposits (B15)	soil su i) erial Ima ncave S	urface): agery (87) urface (8	Seco NV NV NV NV NV NV NV NV NV NV NV NV NV	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizos Presence of R (pos. a,a or salt Deposits	ors (at least Leaves (B erns (B10) pheres on L educed from soil color ch (C5)	2 are required) 9) Living Roots (C3) (within 12 in (C4) nange w/in 12")
Omments: 57 44 ft fled or 18 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	eck ones that a tor is sufficient)  V Sur Inui Spa Mar N Hyd	pply, measure from face Soil Cracks (Bo ndation Visible on Ad irsely Vegetated Con	soil su si) erial Ima ncave Si (C1) (w/	urface): agery (B7) urface (B	Seco N V N C N C N S	ndary Indicate Vater-Stained Orainage Pate Oxid'd Rhizos Presence of R (pos. a,a or	ors (at least Leaves (Bi erns (B10) _ pheres on L educed froi soil color ch (C5) essed Plant	2 are required)  9)  Living Roots (C3) (within 12 n (C4) nange w/in 12")
Omments: Sy 54 to Redor  DROLOGY  Fetland Hydrology Indicators (cherimary Indicators (any one indicator)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	eck ones that a tor is sufficient)  V Sur V Inu V Spa N Mar V Hyd V Dry	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou in Deposits (B15) frogen Suifide Odor Season Water Tabl	soil su si) erial Ima ncave Si (C1) (w/	urface): agery (B7) urface (B	Second N V S	ndary Indicate Vater-Stained Drainage Patte Dxid'd Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Sta Geomorphic P Shallow Aquite	ors (at least Leaves (Bi erns (B10) o pheres on L educed from soil color of (C5) essed Plant osition (D2) ard (D3)	(2 are required)  9)  Living Roots (C3) (within 12 or (C4) n ange w/in 12")  ts (D1)
TOROLOGY  Vetland Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	eck ones that a tor is sufficient)  V Sur V Inu V Spa N Mar V Hyd V Dry	pply, measure from face Soil Cracks (Bo ndation Visible on Ad irsely Vegetated Col 1 Deposits (B15) Irogen Suifide Odor	soil su si) erial Ima ncave Si (C1) (w/	urface): agery (B7) urface (B	Seco N V N V N S N S N S	ndary Indicate Vater-Stained Orainage Path Oxid'd Rhizos Presence of (pos. a,a or s alt Deposits Stunted or Sta Geomorphic P Shallow Aquitz (w/in 24", can	prs (at least Leaves (Bi erns (B10) pheres on L educed from soil color of (C5) pessed Plant osition (D2) ard (D3) perch H2O	(2 are required)  9)  Living Roots (C3) (within 12 or (C4) nange w/in 12")  Its (D1)  9) w/in 12")
Omments: Sy 54 to Redor  DROLOGY  Fetland Hydrology Indicators (cherimary Indicators (any one indicator)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	eck ones that a tor is sufficient)  V Sur V Inu V Spa N Mar V Hyd V Dry	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou in Deposits (B15) frogen Suifide Odor Season Water Tabl	soil su si) erial Ima ncave Si (C1) (w/	urface): agery (B7) urface (B	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Oxid'd Rhizos Oresence of R (pos. σ,α or s Salt Deposits of Stunted or Sta Seomorphic P Shallow Aquite (w/in 24", can	ors (at least Leaves (Bi erns (B10) pheres on L educed from soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O thic Relief (I	2 are required)  9)  Living Roots (C3) (within 12 n (C4) nange w/in 12")  ts (D1)
TOROLOGY  Vetland Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	eck ones that a tor is sufficient)  V Sur V Inu V Spa N Mar V Hyd V Dry	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou in Deposits (B15) frogen Suifide Odor Season Water Tabl	soil su si) erial Ima ncave Si (C1) (w/	urface): agery (B7) urface (B	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	ors (at least Leaves (B: erns (B10) pheres on L educed froi soil color cf (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I) est (D5)	(2 are required)  9)  Living Roots (C3) (within 12 n (C4) nange w/in 12")  ts (D1)  9 w/in 12")
TOROLOGY  Total Marks (B1)  Sediment Deposits (B2)  Algal Mat or Crust (B4)  Indicators (In from ground serior of the following serior of the followin	eck ones that a tor is sufficient)  V Sur V Inu V Spa V Mar V Dry V Oth	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou il Deposits (B15) lrogen Suifide Odor Season Water Tabler (explain)	i soil su i) erial Ima ncave Si (C1) (w/	urface): agery (87 urface (8 in 12*) w/in 24*)	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	ors (at least Leaves (B: erns (B10) pheres on L educed froi soil color cf (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I) est (D5)	(2 are required)  (2 are required)  (3)  (4)  (5)  (64)  (64)  (7)  (7)  (8)  (9)  (9)  (12)  (12)  (13)  (14)  (15)  (15)  (16)  (16)  (17)  (17)  (18)  (1
PROLOGY  Settland Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  and Observations (in. from ground surface Water Present?  Yes_	eck ones that a tor is sufficient)  V Sur V Inui Spa V Hyd V Dry V Other	pply, measure from face Soil Cracks (B6 ndation Visible on Adarsely Vegetated Cou il Deposits (B15) lrogen Suifide Odor Season Water Table er (explain)	soil su erial Ima ncave S (C1) (w/ e (C2) (v	orface): agery (B7) urface (B in 12") w/in 24")	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	ors (at least Leaves (B: erns (B10) pheres on L educed froi soil color cf (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I) est (D5)	(2 are required)  (2 are required)  (3)  (4)  (5)  (64)  (64)  (7)  (7)  (8)  (9)  (9)  (12)  (12)  (13)  (14)  (15)  (15)  (16)  (16)  (17)  (17)  (18)  (1
TOROLOGY  Vetland Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  ald Observations (in. from ground solutions was also water Present?  Yes	eck ones that a tor is sufficient)  N Sur N Inui N Spa N Hyd N Dry N Other	pply, measure from face Soil Cracks (B6 ndation Visible on Ad arsely Vegetated Cool in Deposits (B15) frogen Suifide Odor Season Water Table er (explain)  Depth of water Depth to water	soil su erial Ima ncave Si (C1) (w/ e (C2) (v	agery (87) urface (8 in 12") w/in 24")	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	ors (at least Leaves (B: erns (B10) pheres on L educed froi soil color cf (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I) est (D5)	(2 are required)  (2 are required)  (3)  (4)  (4)  (5)  (64)  (64)  (7)  (7)  (8)  (9)  (9)  (12)  (12)  (13)  (14)  (15)  (15)  (16)  (16)  (17)  (17)  (18
TOROLOGY  Vetland Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Saturation (A3) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  ald Observations (in. from ground solutions was also water Present?  Yes	eck ones that a tor is sufficient)  N Sur N Inui N Spa N Hyd N Dry N Oth Surface): No V eeping in at the	pply, measure from face Soil Cracks (B6 ndation Visible on An irsely Vegetated Coi i Deposits (B15) frogen Suifide Odor Season Water Table or (explain)  Depth of water Depth to water	soil su is) erial Ima ncave Si (C1) (w/ e (C2) (v r (in.)	agery (87) urface (8 in 12") w/in 24")	Seco N V V V S S S S S S S S S S S S S S S S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	ors (at least Leaves (B: erns (B10) pheres on L educed froi soil color cf (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (I) est (D5)	(2 are required)  (2 are required)  (3)  (4)  (4)  (5)  (64)  (64)  (7)  (7)  (8)  (9)  (9)  (12)  (12)  (13)  (14)  (15)  (15)  (16)  (16)  (17)  (17)  (18
TOROLOGY  Fettand Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from ground solutions with the present?  Setturation Present?  Yes  Setturation Present?  Yes  Setturation Present?	eck ones that a tor is sufficient)  N Sur Inui Spa N Hyd N Dry N Oth surface): No eeping in at tha	pply, measure from face Soil Cracks (Be ndation Visible on Ar arsely Vegetated Cor il Deposits (B15) lrogen Suifide Odor Season Water Table er (explain)  Depth of water Depth to water at depth but not yet if	soil su is) erial Ima ncave Si (C1) (w/ e (C2) (v r (in.)	agery (87) urface (8 in 12") w/in 24")	Seco N V N S N S N S N S N S N S N S N S N S N S	ndary Indicate Vater-Stained Daid Rhizos Presence of R (pos. a,a or s alt Deposits Stunted or Str Geomorphic P Shallow Aquitz (w/in 24", can Alcrotopograp AC Neutral T	prs (at least Leaves (Bi erns (B10) pheres on L educed from soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O hic Relief (I est (D5) / dominants	i 2 are required)  9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C4) in (C4) in (C5)  its (D1)  b) w/in 12")  D4) (caused by water)  > #FACU+UPL dominants)
TOROLOGY  Total Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Alda Observations (In. from ground surface Water Present?  Alter Table Present?  Yes  Seturation Present?  Yes  Cludes capillary fringe)	eck ones that a tor is sufficient)  V Sur V Inu V Spa V Hyd V Dry V Oth Surface):  No V eeping in at the	pply, measure from face Soil Cracks (B6 ndation Visible on Ac arsely Vegetated Coi 1 Deposits (B15) lrogen Suifide Odor Season Water Table er (explain)  Depth of water Depth to water at depth but not yet i Depth to sat. ( Epi Endo	soil su erial Ima ncave S (C1) (w/ e (C2) (v r (in.) filled?: Unknow	irface): agery (87) urface (8 in 12*) w/in 24*)	Second No. 10 Control of the control	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizose Orainage Patte Oxid'd Rhizose Orainage Patte Oxid'd Rhizose Orainage Patte (pos. σ,α or orainage) Stunted or Sta Stainted or Sta	prs (at least Leaves (Bi erns (B10) pheres on L educed from soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O hic Relief (I est (D5) / dominants	i 2 are required)  9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C4) in (C4) in (C5)  its (D1)  b) w/in 12")  D4) (caused by water)  > #FACU+UPL dominants)
TOROLOGY  Fettand Hydrology Indicators (cherimary Indicators (any one indicators (any one indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  eld Observations (in. from ground solutions with the present?  Setturation Present?  Yes  Setturation Present?  Yes  Setturation Present?	eck ones that a tor is sufficient)  V Sur V Inu V Spa V Hyd V Dry V Oth Surface):  No V eeping in at the	pply, measure from face Soil Cracks (B6 ndation Visible on Ac arsely Vegetated Coi 1 Deposits (B15) lrogen Suifide Odor Season Water Table er (explain)  Depth of water Depth to water at depth but not yet i Depth to sat. ( Epi Endo	soil su erial Ima ncave S (C1) (w/ e (C2) (v r (in.) filled?: Unknow	irface): agery (87) urface (8 in 12*) w/in 24*)	Second No. 10 Control of the control	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizose Orainage Patte Oxid'd Rhizose Orainage Patte Oxid'd Rhizose Orainage Patte (pos. σ,α or orainage) Stunted or Sta Stainted or Sta	prs (at least Leaves (Bi erns (B10) pheres on L educed from soil color ch (C5) essed Plant osition (D2) and (D3) perch H2O hic Relief (I est (D5) / dominants	i 2 are required)  9)  Living Roots (C3) (within 12 in (C4) in (C4) in (C4) in (C4) in (C5)  its (D1)  b) w/in 12")  D4) (caused by water)  > #FACU+UPL dominants)
TOROLOGY  Total Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Alda Observations (In. from ground surface Water Present?  Alter Table Present?  Yes  Seturation Present?  Yes  Cludes capillary fringe)	eck ones that a tor is sufficient)  V Sur Inui Spa N Hyd N Dry N Oth Surface): No	pply, measure from face Soil Cracks (B6 ndation Visible on Ad arsely Vegetated Col il Deposits (B15) drogen Suifide Odor Season Water Table er (explain)  Depth of water Depth to water at depth but not yet if Depth to sat. ( Epi Endo well, aerial photos,	r (in.)	agery (87) urface (8 in 12") w/in 24")	Secon N V V V S V S V S V S V S V S V S V S V	ndary Indicate Vater-Stained Orainage Patte Oxid'd Rhizos Presence of Ri (pos. a,a or ri Salt Deposits Stunted or Str Seomorphic P Shallow Aquits (w/in 24", can filerotopograp IAC Neutral T (# OBL+FACV	ors (at least Leaves (8: Leaves (8: cerns (810) pheres on L educed froi soil color ch (C5) essed Plani osition (D2) and (D3) perch H2O thic Relief (1: est (D5) / dominants	2 are required) 9) Living Roots (C3) (within 12 in (C4) hange w/in 12") its (D1) 0 w/in 12") D4) (caused by water) > #FACU+UPL dominants)



Site 135: Soil, July 20, 2017



Site 135: Soil, July 20, 2017





Site 135: Vegetation, looking north on July 20, 2017



Site 135: Vegetation, looking south on July 20, 2017

Project: Palnew VMS Borough/City: JAW/1-PAIN	Date: 7.21.2017
Applicant/Owner Constantive	Sampling Point #: 147
	HDR Alaska, Inc.
Lat. (dec. *) 59.42783 Long. 136. 20159 ± 'NAD 83 Recorded	
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Land	
Local relief: Shape across slope: linear / convex/ concave Shape up/downslope: linear /	
Photo nos./descriptions: 522/13 Soil; 524-527 NESW Camera #: Mo	100
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: $$ No:	
Are Vegetation N, Soll N, or Hydrology naturally problematic? If needed, explain	VICTORIA CA
SUMMARY OF FINDINGS  Hydrophytic Vegetation Present? Yes No   No   No   No   No   No   No	logged FT-102
Is the sampled a	
Hydric Soil Present? Yes No within a wetland	
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % c	
Tree Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)
1. Tsuga het 15 Y. +xc 5.	That are OBL, FACW, or FAC: (A)
2. Par tri: 3	Total Number of Dominant Species Across All Strata: 5 (8)
3. <del>1 </del>	Species Across All Strata: 5 (8)
Total Tree Cover:	Percent of Dominant Species
	That are OBL, FACW, or FAC: 40% (A/B) Prevalence Index worksheet:
50% of total cover: 9 20% of total cover: 3.6	
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.  1. Tsnga het 5 FAC 7. Vace about 3 FAC	OBL species X1=
2. Picca Ship 15 y FAC. V. B. Cornv. Can 2 FAC.	EACM ensoine (// Y2= /2)
3. Oplo hony 20 7 FACIU 8. Videdule 3 PACI	
4. libes lac 15 7 FAC 10. Cop to 10 Phill	
5. Rubus spec 5 FAC U 11.	UPL + NL species X5= X5=
6. Cornus stal 5 FAC 12.	Column Totals: 209 (A) 378 (B)
Total Sapling/Shrub Cover: 33	212 803
50% of total cover: 41.5 20% of total cover: 14.6	Prevalence Index = B/A = 3.70
Herb Stratum	
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
1. Goi and 10 FAC-U 12.	Hydrophytic Vegetation Indicators:
2 ayme dry 70 Y- FAC. U13.	N Dominance Test is>50%
3. Tara 0.47 T FACU 14. 4. Gal toffer 2 FAC 15.	N Prevalence Index is ≤3.0
5.0cm.   Sec   B   FAC V16.	Morphological Adaptations (Provide supporting
6. Viola 507 3 17.	Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
7. Monare uni 3 FAC. V 18.	Problematic Hydrophytic Vegetation (Explain)
8. Tiarella to 18 FAC 19.	Troblematic hydrophytic vegetation (Explain)
9. Strep any 2 FAGU 20.	
10. Equi Arv 2 FAC 21.	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
11. At my fil-fem 3 FAC 22.	be present unless disturbed or problematic.
Total Herb Cover: 111	
50% of total cover:	Hydrophytic
Circular 1/10-ac plot ✓ or other plot dimension: % of bare ground: _ 5	Vegetation Yes No V
Circular 1/10-ac plot vor other plot dimension: % of bare ground: 5 % Cover of Wetland Bryophytes % Total Cover of Bryophytes %	
Circular 1/10-ac plot √ or other plot dimension: % of bare ground: _ 5	Vegetation Yes No V

Depth Horizon	Soil Matri:	×		lox Features		ence of Indicato		
(In) (and)					. 2		a,a dip.	Remarks
(in.) (opt.) 0-3 (1;	Color (moist)	<u>%</u>	Color (moist)	% Type¹	Loc <sup>2</sup>	Texture	neg)	(or use comment numbe
	- mala					del	_	
3-5 B1	2543/3					SiL		III HE I SA EM
5-10 B2	2.543/1					Sand	neg	
10-20 B3	5Y8/2					Sal	neg	
1 200								
	- X							
- (	Name and the second				_			I - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
								= Root Channel, M = Ma
tydric Soi! Indicat	ors (check ones tha	it apply, meas	sure from top of	mineral layers u	niess oth	erwise noted)	:	4.00
Standard Indicator	8:		Indicators for	r Problematic Hy	dric Soll	s²:		2
M Histosol or His	itel (A1) (≥16"organic	surface,	N Alaska C	Color Change <sup>4</sup> (T/	A4)			of hydrophytic vegetation
	wet period of growing s		1	solot Change (1)	.,			dicator of wetland an appropriate landscape
. undertain by	n (A2) (8-16" organic mineral soll with chrom		N Alaska A	Upine Swales (TA	<b>(5)</b>	pos	ition must b	e present unless disturbe
N Hydrogen Sulf	ide (A4) (within 12"of	ground	N Alaska F	and an entitle of EV.	lu.	orp	problematic.	
surface; @_	" in this pit		. 1	Redox with 2.5Y H			ye details of	color change in Remarks
N Thick Dark Su	rface (A12)			Sleyed without Hu lying Layer	e 5Y or R	edder		
N Alaska Gleyed			_ಸ_ Other (e.	g., see p.91 of 2007	7			
N Alaska Redox	(A14)		Supple	ment; explain in Rer	narks)			
N Alaska Gleyed	Pores (A15)							
Restrictive Layer (if p	•		Drainage Clas	s: WD				1
Type: none			Soil Map Unit					
-37			Sou Mah Our	Name:	Ну	dric Soil Pres	ent?	Yes No V
Depth (inches)_ Comments:			Soli wap Olik	Name:	Ну	dric Soll Pres	ent?	Yes No V
Depth (inches) Comments:   YDROLOGY Vetiand Hydrology Primary Indicators  V Surface Water (A V High Water Table V Saturation (A3) ( V Water Marks (B1 V Sediment Depos V Drift Deposits (B:	Indicators (check o (any one indicator is A1) e (A2) (w/in 12") w/in 12") its (B2) 3) st (B4)	sufficient)  N Surfac N Inunda N Sparse N Marl D N Hydrog Dry-Se		soil surface): ) prial Imagery (B7) acave Surface (B6	Sec   N   N   N   N   N   N   N   N   N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (B8 ems (B10) _ coheres on L educed iron color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)  iving Roots (C3) (within 12 (C4) ange w/in 12")  s (D1)  w/in 12")  04) (caused by water)
Depth (inches) Comments:  Depth (inches) Comments:  Depth (inches) Comments:  Depth (inches) Comments: Depth (inches) Com	Indicators (check o (any one indicator is A1) e (A2) (w/in 12") w/in 12") its (B2) 3) st (B4)	sufficient)  N Surfac N Inunda N Sparse N Marl D Hydrog N Dry-Se	y, measure from e Soil Cracks (86 tion Visible on Ae ily Vegetated Con eposits (B15) en Sulfide Odor ( ason Water Table	soil surface): ) prial Imagery (B7) acave Surface (B6	Sec   N   N   N   N   N   N   N   N   N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (B8 ems (B10) _ coheres on L educed iron color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1)
Depth (inches) Comments:  COROLOGY Vetland Hydrology Primary Indicators  Surface Water (A) High Water Table  Mater Marks (B1) Sediment Deposits (B2) Algal Mat or Crus  Iron Deposits (B3) Iron Deposits (B4) Iron Deposits (B	indicators (check of (any one indicator is A1) e (A2) (w/in 12") w/in 12") its (B2) 3) st (B4) in from ground surface	sufficient)  N Surfac N Inunda N Sparse N Marl D Hydrog N Dry-Se	y, measure from e Soil Cracks (86 tion Visible on Ae ily Vegetated Con eposits (B15) en Sulfide Odor ( ason Water Table	soil surface): ) brial Imagery (B7) brave Surface (Bi (C1) (w/in 12*) brace (C2) (w/in 24*)	Sec   N   N   N   N   N   N   N   N   N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (B8 ems (B10) _ coheres on L educed iron color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)  iving Roots (C3) (within 12 (C4) ange w/in 12")  s (D1)  w/in 12")  04) (caused by water)
Depth (inches) Comments:  COROLOGY Vetland Hydrology rimary Indicators  Surface Water (A) High Water Table  Marks (B1) Sediment Depos Drift Deposits (B2) Algal Mat or Crus Iron Deposits (B3) eld Observations (in	Indicators (check of (any one indicator is A1)  e (A2) (w/in 12")  w/in 12")  its (B2)  3)  st (B4)  from ground surface of Yes	Sufficient)  N Surface N Inunda N Sparse N Marl D N Hydrog Dry-Se D Other (	y, measure from e Soil Cracks (86 tion Visible on Ae ely Vegetated Con eposits (815) en Sulfide Odor ( ason Water Table explain)	soil surface): ) prial imagery (B7) pcave Surface (Bi C1) (w/in 12*) pc (C2) (w/in 24*)	Sec   N   N   N   N   N   N   N   N   N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (B8 ems (B10) _ coheres on L educed iron color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)  iving Roots (C3) (within 12 (C4) ange w/in 12")  s (D1)  w/in 12")  04) (caused by water)
Depth (inches) Comments:  COROLOGY Vetland Hydrology Inmary Indicators  Surface Water (A) High Water Table  Marks (B1) Sediment Depos  Drift Deposits (B2) Algal Mat or Crus  Iron Deposits (B3) eld Observations (inurface Water Preser	Indicators (check of (any one indicator is A1)  e (A2) (w/in 12")  w/in 12")  its (B2)  3)  st (B4)  in. from ground surfactor  Yes  Yes	Sufficient)  N Surfac N Inunda N Sparse N Marl D Hydrog N Dry-Se Other (	y, measure from e Soil Cracks (86 tion Visible on Ae sly Vegetated Con eposits (815) jen Sulfide Odor ( ason Water Table explain)  Depth of water Depth to water	soil surface): ) prial imagery (B7) pcave Surface (Bi (C1) (w/in 12") pc (C2) (w/in 24")	Sec   N   N   N   N   N   N   N   N   N	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (B8 ems (B10) _ coheres on L educed iron color ch (C5) essed Plant osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)  iving Roots (C3) (within 12 (C4) ange w/in 12")  s (D1)  w/in 12")  04) (caused by water)
Depth (inches) Comments:  // DROLOGY Vetland Hydrology Primary Indicators // Surface Water (A) // High Water Table // Saturation (A3) ( // Water Marks (B1) // Sediment Depos // Drift Deposits (B3) // Algal Mat or Crus // Iron Deposits (B3)	indicators (check of (any one indicator is A1) e (A2) (w/in 12") w/in 12") i) its (B2) 3) st (B4) f) n. from ground surfactor yes yes Seepir	Sufficient)  N Surfac N Inunda N Sparse N Marl D N Hydrog Dry-Se N Other (	y, measure from e Soil Cracks (86 tion Visible on As ely Vegetated Con eposits (B15) en Sulfide Odor ( ason Water Table explain)  Depth of water Depth to water epth but not yet fi	soil surface): ) brial Imagery (B7) brave Surface (Bi (C1) (w/in 12") brave (C2) (w/in 24")  (in.)	Sec	ondary Indicate Water-Stained Drainage Patts Oxid'd Rhizose Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	cors (at least Leaves (Bs ems (B10) _ coheres on L educed iron coil color ch (C5) essed Plant cosition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
Depth (inches) Comments:  COROLOGY Vetland Hydrology Inmary Indicators  Surface Water (A) High Water Table Saturation (A3) (I) Water Marks (B1) Sediment Deposits (B2) Infit Deposits (B2) Infit Deposits (B3) Infit Deposits (B3) Infit Deposits (B3) Infit Deposits (B3) Infit Deposits (B4)	Indicators (check of (any one indicator is A1)  e (A2) (w/in 12")  w/in 12")  its (B2)  3)  st (B4)  for Yes  Yes  Seepin Yes	Sufficient)  N Surfac N Inunda N Sparse N Marl D Hydrog N Dry-Se Other (	y, measure from e Soil Cracks (86 tion Visible on As ely Vegetated Con eposits (815) en Sulfide Odor ( ason Water Table explain)  Depth of water Depth to water epth but not yet fi	soil surface): ) prial imagery (B7) prial imagery (	Sec	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of Re (pos. q. or or sell Deposits ( Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	cors (at least Leaves (Bs ems (B10) _ coheres on L educed iron coil color ch (C5) essed Plant cosition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
Depth (inches) Comments:  DROLOGY  Vetland Hydrology rimary Indicators  Surface Water (A) High Water Table Saturation (A3) ( Water Marks (B1) Sediment Deposits (B2) Algal Mat or Crus Iron Deposits (B3) Iron Deposits (B3) Iron Deposits (B4) Iron Deposits (B4) Iron Deposits (B5) Iron Deposits (B5) Iron Deposits (B6) Iron Deposits (B7) I	Indicators (check of (any one indicator is A1)  e (A2) (w/in 12")  w/in 12")  its (B2)  st (B4)  for Yes  Seepin Yes  ge)	Sufficient)  N Surface N Inunda N Sparse N Marl D Hydrog N Dry-Se N Other (	y, measure from e Soil Cracks (86 tion Visible on As ily Vegetated Con eposits (815) ien Sulfide Odor ( ason Water Table explain)  Depth of water Depth to water epth but not yet fi Depth to sat. (i Epi Endo	soil surface): ) srial Imagery (B7) scave Surface (Bi (C1) (w/in 12") e (C2) (w/in 24")  (in.) (in.) Unknown	Secondary Marketine Market	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquite (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	cors (at least Leaves (Bs ems (B10) _ coheres on L educed iron coil color ch (C5) essed Plant cosition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)
Depth (inches) comments:  DROLOGY  Vetland Hydrology rimary Indicators  Surface Water (A) High Water Table Saturation (A3) ( Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crus Iron Deposits (B3) Iron Deposits (B3) Iron Deposits (B4) Iron Deposits (B4) Iron Deposits (B5) Iron Deposits (B5) Iron Deposits (B6) Iron Deposits (B7) I	Indicators (check of (any one indicator is A1)  e (A2) (w/in 12")  w/in 12")  its (B2)  3)  st (B4)  for Yes  Yes  Seepin Yes	Sufficient)  N Surface N Inunda N Sparse N Marl D Hydrog N Dry-Se N Other (	y, measure from e Soil Cracks (86 tion Visible on As ily Vegetated Con eposits (815) ien Sulfide Odor ( ason Water Table explain)  Depth of water Depth to water epth but not yet fi Depth to sat. (i Epi Endo	soil surface): ) srial Imagery (B7) scave Surface (Bi (C1) (w/in 12") e (C2) (w/in 24")  (in.) (in.) Unknown	Secondary Marketine Market	ondary Indicate Water-Stained Drainage Patte Oxid'd Rhizose Presence of R (pos. α,α or s Salt Deposits ( Stunted or Stre Geomorphic P Shallow Aquite (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	cors (at least Leaves (Bs ems (B10) _ coheres on L educed iron coil color ch (C5) essed Plant cosition (D2) ard (D3) perch H2O hic Relief (I est (D5) / dominants	2 are required) iving Roots (C3) (within 12 (C4) ange w/in 12") s (D1) w/in 12") 04) (caused by water) > # FACU+UPL dominants)





Site 147: Soil, July 21, 2017



Site 147: Soil, July 21, 2017





Site 147: Vegetation, looking north on July 21, 2017



Site 147: Vegetation, looking south on July 21, 2017

Project: Palnew VM5 Borough/City: JNU	Haines Date: 7-21-2017
Applicant/Owner: Constantine	Sampling Point #: 149
Investigator(s): Dong Jewell; even auningham	Firm: HDR Alaska, Inc.
Investigator(s): <u>Dong Jewill jewin cunningham</u> Lat. (dec. *) <u>59. 42948</u> Long. <u>176. 27487</u> ± NAD 83 Re	corded on GPS #: Marked on map? Field Map #:
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern	
Local relief: Shape across slope: linear / convex / concave Shape up/downslope:	
Photo nos /descriptions: 528 29 Soll 5 530 -533 VCG Camer	a #: MOS Veg Type (Viereck Level 4 or other): Open Tall Sc
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: <a href="Yes:vector">Vector</a>	No: If no, explain. HGM type:
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Non	
Are Vegetation $\overline{\mathcal{N}}$ , Soil $\overline{\mathcal{N}}$ , or Hydrology $\overline{\mathcal{N}}$ naturally problematic? If needed	, explain answers here.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No Is the same	poled area
Hydric Soil Present? Yes No within a v	wetland? Yes No V
Wetland Hydrology Present? Yes No V	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover	
Tree Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom?	Ind. Number of Dominant Species
1. Pep hi 10 Y HALCU 5.	That are OBL, FACW, or FAC: (A)
2 6	Consider Assessed All Chapter
3 7 7 4 8	(B)
Total Tree Cover:	Percent of Dominant Species
	That are OBL, FACW, or FAC: (A/B)  Prevalence Index worksheet:
50% of total cover: 5 20% of total cover: 2 Sapling/Shrub Stratum (woody plants < 3" dbh)	
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom?	Ind O
1. Pop tri 20 Y FACU 7.	OBL species X1= D
2 Sheperdia Can 20 Y FACU 8.	FACW species X2= X2=
3 9	FAC species X3= 6
4	
511	
	Column Totals: 120 (A) 480 (B)
Total Sapling/Shrub Cover: 40	
50% of total cover: 20% of total cover: 8	Prevalence Index = B/A = 4.25 4.0
Herb Stratum  Abs.Cov.% Dom? Ind. Abs. Cov.% Dom?	Ind.
1. Dryas drym 70 Y FACU 12.	
213	Hydrophytic Vegetation Indicators:
3 14	N Dominance Test is>50% N Prevalence index is ≤3.0
4 15	N Prevalence Index is ≤3.0
5 16	Morphological Adaptations¹ (Provide supporting
6 17 18.	data in Remarks or on a separate sheet)
8	Problematic Hydrophytic Vegetation¹ (Explain)
9. 20.	
10 21	1 indicators of hydric soil and wetland hydrology must
11 22	be present unless disturbed or problematic.
Total Herb Cover: 70	
50% of total cover: 35 20% of total cover: 14	Hydrophytic
Circular 1/10-ac plot ✓ or other plot dimension: % of bare ground:	Vegetation Yes No No
% Cover of Wetland Bryophytes% Total Cover of Bryophytes% where applicable)	75 Present?
Remarks: * bare ground mostly littled ulded dryac	
story of the start of suce a sty yes	

SOIL						Sampling Po	int#: 148
Profile Description: (Describe to the depth	needed to document the Ind	icator or confirm	the absence	of indicate	ors)		
Depth Horizon Soil Matrix	Redox	c Features			a,a dip.		
(in.) (opt.) Color (moist)	% Color (moist)	% Type¹	Loc2	Texture_	(pos/		marks
0-5 B1 Z.5Y3/1				SiL	nea)	TOT USE CO	nment number)
5-20 Bz 5YZ,5/1				Sand	,	Variesan	ed sad
					neg		-1 5 40-(
					_		
					_		
<sup>1</sup> Type: C = Concentration, D = Depletion, RI	A = Reduced Matrix CS=Cos	ted Sand Grains	21 ocation:	DI = Dom	Lining PC -	Pool Chan	nol M = Mate
Hydric Soil Indicators (check ones that ap						Root Chair	nei, ivi = Math
				se notea)			
Standard Indicators:		roblematic Hyd	iric Soils":	30			
N Histosol or Histel (A1) (216"organic surfice sating during wet period of growing seaso		or Change <sup>4</sup> (TA4	4)	one	e indicator of primary ind	it hydrophyt icator of wei	ic vegetation,
Histic Epipedon (A2) (8-16" organics, sar	Mad 3	ine Sumles (TAE	,	hyd	rology, and	an approprie	te landscape
underlain by mineral soil with chroma ≤2	IV Alaska Alp	ine Swales (TA5	)			present un	less disturbed
N Hydrogen Sulfide (A4) (within 12°of groussurface; @ "in this pit	nd /V Alaska Red	dox with 2.5Y Hu	e		roblematic.	color chang	e in Remarks.
Λ1	N Alaska Glo	yed without Hue	5V or Pedd	2 W. A.			131
Thick Dark Surface (A12)		ng Layer	51 01 11800	31			
Alaska Gleyed (A13)		see p.91 of 2007					
N Alaska Redox (A14)		nt; explain in Rema	arks)				
N Alaska Gleyed Pores (A15)							
Restrictive Layer (if present)	Drainage Class:	WD					
Type: hone	Soil Map Unit Na	me:	Hydric	Soll Pres	ent?	res	No V
Depth (inches)	The second second						1000
1. Cobhus Star in B <sub>2</sub> lays 3.  HYDROLOGY  Wetland Hydrology Indicators (check ones  Primary Indicators (any one indicator is suffi  N Surface Water (A1) N High Water Table (A2) (w/in 12") N Saturation (A3) (w/in 12") N Water Marks (B1) N Sediment Deposits (B2) N Drift Deposits (B3) N Algal Mat or Crust (B4) N Iron Deposits (B5)	that apply, measure from so cient) Surface Soil Cracks (B6) Inundation Visible on Aeria	al Imagery (B7) ave Surface (B8) I) (w/in 12")	Wat  N Drai  N Oxio  Pres  (po  Salt  N Stur  N Stur  N Sha  (w/i  N Micr	er-Stained nage Patte l'd Rhizosp sence of Res. α,α or s Deposits (ated or Stremorphic Pollow Aquitan 24*, can otopograp Neutral Terrore Pattern Terrore Pollow Aquitan 24*, can otopograp	educed Iron soil color cha (C5) essed Plants osition (D2) ard (D3) perch H2O v hic Relief (D	ving Roots ( (C4) inge w/in 12 (D1) w/in 12") 4) (caused by	C3) (within 12") ")  (water)
Field Observations (in. from ground surface):	/		(#			# 1 A00+UF	L COMMONIUS)
Surface Water Present? Yes N	o Depth of water (in	n.)					
Water Table Present? Yes N							
Seeping in	at that depth but not yet fille						,
	Depth to sat. (in.)		Wetland	Hydrolog	y Present?	Yes	No.
(includes capillary fringe)		known	110000110	ya.o.og	y . 100011C1	103	
Describe Recorded Data (stream gauge, monit			s), if availab	le:			
Remarks:				100			





Site 148: Soil, July 21, 2017



Site 148: Soil, July 21, 2017



Site 148: Vegetation, looking north on July 21, 2017



Site 148: Vegetation, looking west on July 21, 2017

Project: PARMER VIMS Borough/City: JNU HAWE	3 Date: 7.21.2017
Applicant/Owner: Constantine	Sampling Point #: 152.
Investigator(s): Dong Jawell; each anningham Firm: HD	
Lat. (dec.") 59, 42566 Long. 136. 29033 ± ' NAD 83 Recorded on	
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform	
Local relief: Shape across slope linear convex / concave Shape up/downslope: linear / convex / concave	
Photo nos./descriptions: 552/53 Torks; 554 - 557 NESW Camera #: M21	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: Ves. No:	
Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain as	
	nswers nere.
SUMMARY OF FINDINGS    Hydrophytic Vegetation Persont?   Vegetation Persont Person	
Hydrophytic Vegetation Present? Yes No lis the sampled area	
Hydric Soil Present? Yes No within a wetland?	Yes No
Wetland Hydrology Present? Yes No V	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can	
Tree Stratum (dbh≥ 3")	Dominance Test worksheet:
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
1. Tsuga het 22 Y FAC 5.	That are OBL, FACW, or FAC: (A)
2. Picka sitch 15 Y tach 6	Total Number of Dominant
3. Bet pap 3 _ FACU 7	Species Across All Strata: 5 (B)
4 8	Percent of Dominant Species
Total Tree Cover: 40	That are OBL, FACW, or FAC: 20% (A/B)
50% of total cover: 20 20% of total cover:	Prevalence Index worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	OBL species X1=
1.000 how 30 Y FAC. U 7. Ribes ac 2 FAC	FACW species X2=
2. Fruga het 7 MC 8. Pub spec T FACY	A STATE OF THE STA
3. Cornus (an 20 Y FAC. U 8. Vacc par T FAC. U 4. Astac norm 5 FAC 10. Rubus oed 2 FAC	
4. Astac norm 5 FAC 10. Rubus ped 2 FAC 5. Vacc als 8 FAC 11. Vacc aval 3 FAC	FACU species 153 X4= 612
0 VI all. F	UPL + NL species X5=
	Column Totals: 208 (A) 777 (B)
Total Sapling/Shrub Cover: 82	4.01
50% of total cover: 41 20% of total cover: 16,4	Prevalence Index = B/A = 3.74
Herb Stratum	
Abs. Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.  1. 6 4 mg dy 60 Y #K·U 12.	van lie
1. Gymn dry GO Y MC·U 12	Hydrophytic Vegetation Indicators:
3. Pyrola asa B Facula.	N Dominance Test is>50%
4. More uni T PAC U 15.	N Prevalence Index is ≤3.0
5.Gal triflman 2 FAC 16.	Morphological Adaptations (Percido supporting
5.Gal tritleman 2 FAC 16.	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
5. Gal trition 2 FAC 16. 6. Egn arv T FAC 17. 7. Lot cord T FAC 18.	data in Remarks or on a separate sheet)
5. Gal tritionin Z FAC 16.  6. Egm arv P FAC 17.  7. List cord T FAC 18.  8. Tiaicllati T FAC 19.	
5. Gal tritionin 2 FAC 16. 6. Em arv 2 FAC 17. 7. List cord T FAC 18. 8. Travellati T FAC 19. 9. Im exp 2 FAC U20.	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)
5. Gal trition 2 FAC 16.  6. Egn arv D FAC 17.  7. Lot cord T FAC 18.  8. Traidlati T FAC 19.  9. In cap 2 FAC 21.	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must
5. Gal tritionin 2 FAC 16. 6. Egm arv D FAC 17. 7. List cord T FAC 18. 8. Traidlati T FAC 19. 9. Day cup 2 FAC 20. 10. Allow fillus (cor) 2 FAC 21. 11	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)
5. Gal trition 2 FAC 16. 6. Em arv 2 FAC 17. 7. List cord T FAC 18. 8. Tiardla tri T FAC 19. 9. Des cup 2 FAC U20. 10. Athy Alix Cord 2 FAC 21. 11. 22. Total Herb Cover: 86	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must
5. Gal trition 2 FAC 16. 6. Em arv & FAC 17. 7. List cord T FAC 18. 8. Tiaiclla m T FAC 19. 9. Dm cro 2 FAC U 20. 10. My flix (cr) 2 FAC 21. 11. 22. Total Herb Cover: 86 50% of total cover: 43 20% of total cover: 17.2	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.  Hydrophytic
5. Gel trition 2 FAC 16. 6. Em arv 2 FAC 17. 7. List cord T FAC 18. 8. Inivide th T FAC 19. 9. In CLD 2 FAC U20. 10. Allow fills (cn 2 FAC 21. 11	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.  Hydrophytic Vegetation Yes No
5. Gel trition 2 FAC 16. 6. Em arv & FAC 17. 7. List cord T FAC 18. 8. Tiarcella tri T FAC 19. 9. Day cap 2 FAC U20. 10. All w [cn 2 FAC 21. 11. 22. Total Herb Cover: 86 50% of total cover: 43 20% of total cover: 17.2	data in Remarks or on a separate sheet)  N Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.  Hydrophytic

- 4	11 .			to document the i					
Depth	Horizon	Soil Matrix			dox Features			a,a dip. (pos/	Damada
(in.)	<u>(opt.)</u>	Color (moist)	%	Color (moist)	% Type¹	Loc2	Texture	neg)	Remarks for use comment nu
1-6	Oi_								
2-18	B	10TR2/2							20% cobbu
							66 E		
						_			
						-			
									= Root Channel, M =
ydric S	ioii Indicato	rs (check ones that	t apply, mea	sure from top of	mineral layers	unless oth	erwise note	ed):	
tandar	d Indicators			Indicators fo	r Problematic I	lydric Soil	s³:		
<u>₩</u> His	tosol or Histe	ol (A1) (≥16*organic	surface,	Al Alacka	Color Change <sup>4</sup> (	TAA\			of hydrophytic vegeta
d		et period of growing se			Soloi Change (	17(4)			dicator of wetland
His	tic Epipedon	(A2) (8-16" organics	s, sat'd,	Alaska	Alpine Swales (1	A5)			i an appropriate lands be present unless dis
Hv	1000	e (A4) (within 12"of		1				or problematic.	
		"in this pit	ground	N Alaska I	Redox with 2.5Y	Hue	A N	Give details o	f color change in Ren
N Thi	ck Dark Surfa	non (A42)		N Alaska	Sleyed without I	lue 5Y or F	ledder		
T T T T	CK Dark Sun	3C8 (A12)			nlying Layer				
V Ala	ska Gleyed (	A13)		Other (e	g., see p.91 of 20	07			
V. Ala	ska Redox (A	(14)			ment; explain in R				
N. Carlot	ska Gleyed F	Pores (A15)							
V Ala									
	e Layer (if pr	esent)		Drainage Clas	s: WD				
estrictiv	TIGHT-STEAM	- 0.0		Drainage Clas		HV	dric Soil Pr	resent?	Yes No
estrictiv Type: Depth ommen	(inches)	- 0.0		Drainage Clas Soil Map Unit		Ну	dric Soil Pr	esent?	Yes No _
estrictiv Type: Depth Ommen  DROL  etiand imary li Surfa High Satur Wate Sedin Drift I Algal	(inches)	ndicators (check or any one indicator is i) (A2) (w/in 12") //in 12") s (B2)	Sufficient)  N Surface N Inunda N Spers N Mari E N Hydro	Soil Map Unit  lly, measure from  ce Soil Cracks (Be ation Visible on Ar ely Vegetated Cor Deposits (B15) gen Sulfide Odor eason Water Table	Name: soil surface): i) erial Imagery (Bincave Surface (I	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with (C4) mande w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
Type: Depth Ommen  DROL  Vetland rimary li  Surfa  High Satur  Wate  Sedin  Drift I  Algal Iron E	(inches)	ndicators (check or any one indicator is 1) (A2) (w/in 12") //in 12") s (B2)	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro N Dry-Se N Other	Soil Map Unit  lly, measure from  ce Soil Cracks (Be ation Visible on Ar ely Vegetated Cor Deposits (B15) gen Sulfide Odor eason Water Table	Name: soil surface): i) erial Imagery (Bincave Surface (I	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with n (C4) nange w/in 12") ts (D1) ) w/in 12")
DROL  DROL  Otland  imary le  Satur  Wate  Sedin  Drift I  Algal  Iron E	(inches)	indicators (check or any one indicator is 1) (A2) (w/in 12") v/in 12") s (B2) (B4)	Sufficient)  N Surfact N Inund N Spers N Mari E N Hydro N Dry-Sc N Other	Soil Map Unit  lly, measure from  se Soil Cracks (Be ation Visible on Ar ely Vegetated Cor peposits (B15) gen Sulfide Odor peason Water Tabl (explain)	Name: soll surface): erial Imagery (Bacave Surface (I	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with (C4) mande w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
DROL  detland imary li  Satur  Wate  Algal  Iron E  Bid Observace W	(inches)	indicators (check or any one indicator is i) (A2) (w/in 12") //in 12") (B2) (B4) from ground surface? Yes	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro Dry-Se N Other	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Adely Vegetated Corposits (B15) gen Sulfide Odor teason Water Table (explain)	Name:  soil surface):  erial Imagery (B' ncave Surface (I (C1) (w/in 12") e (C2) (w/in 24")	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with (C4) mande w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
DROL  detland imary li  Satur  Wate  Algal  Iron E  Bid Observace W	(inches)	indicators (check or any one indicator is i) (A2) (w/in 12") (A2) (w/in 12") (B4) (B4) from ground surface? Yes Yes	Sufficient)  N Surfact N Inund: N Spars N Mari E N Hydro N Dry-Se NO No No	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Act ely Vegetated Cor Deposits (B15) gen Suifide Odor teason Water Table (explain)  Depth of water Depth to water	Name:  soil surface):  i) erial Imagery (Bincave Surface (I	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with (C4) mande w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
Type: Depth Ommen  DROL Vetland rimary le Satur V Wate V Sedin Drift I Algal I ron E eld Obse	(inches)	indicators (check or any one indicator is it) (A2) (w/in 12") (B4)  from ground surface? Yes Yes Seepin	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro N Dry-Sc Other  Se): No	Soil Map Unit  ly, measure from  se Soil Cracks (Beation Visible on Adely Vegetated Con  seposits (B15)  gen Sulfide Odor  eason Water Table  (explain)  Depth of water  Depth to water  depth but not yet if	Name:  sol! surface):  erial Imagery (Bincave Surface (I	38) N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhizz Presence of (pos. α,α α Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24", α MIcrotopogr	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with (C4) mande w/in 12") ts (D1) ) w/in 12") D4) (caused by water)
estrictiv Type: Depth Ommen  DROL etland imary li Surfa High Setur V Wate Drift I Algal Iron E eld Observator Tab	(inches)	indicators (check or env one indicator is in it	Sufficient)  N Surfact N Inund: N Spars N Mari E N Hydro N Dry-Se NO No No	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Adely Vegetated Corposits (B15) gen Sulfide Odor teason Water Table (explain)  Depth of water Depth to water Depth to sat. (Corposits (B15))	Name:  soil surface):  prial Imagery (B' ncave Surface (I (C1) (w/in 12")  pr (C2) (w/in 24")  r (in.)  filled?:  in.)	Sec. N.	ondary Indic Water-Stain Drainage Pa Oxid'd Rhize Presence of (pos. α,α of Salt Deposit Stunted or S Geomorphic Shallow Aqu (w/in 24*, c Microtopogi FAC Neutra (# OBL+FA	ators (at least and Leaves (B: atterns (B10) of Reduced Iron or soil color of ts (C5) Stressed Plant c Position (D2) uitard (D3) an perch H2O raphic Relief (I	t 2 are required) 9) Living Roots (C3) (with an (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL domina
estrictiv Type: Depth Ommen  DROL etland imary li Surfa High Sedur V Wate Condition of the control inface Water Tab	(inches)	mdicators (check or env one indicator is i) (A2) (w/in 12") //in 12") (B4)  from ground surface? Yes Yes Seepin Yes e)	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro N Dry-Se N Other  Se): No	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Adely Vegetated Corposits (B15) gen Sulfide Odor teason Water Table (explain)  Depth of water Depth to water Depth to sat. (Epi Endo	Name:  soil surface):  prial Imagery (B' ncave Surface (I (C1) (w/in 12")  a (C2) (w/in 24")  r (in.)  r (in.)  Unknown	7) N N N N N N N N N N N N N N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhize Presence of (pos. a,a a Salt Deposi Stunted or S Geomorphic Shallow Aqt (w/in 24", c Microtopogr FAC Neutra (# OBL+FA	ators (at least and Leaves (B: atterns (B10) ospheres on L f Reduced Iron or soil color ch ts (C5) Stressed Plant c Position (D2) an perch H2O aphic Relief (I I Test (D5) CW dominants	t 2 are required) 9) Living Roots (C3) (with an (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL domina
DROL DROL Settand Imary In Setur Wate Sedin Drift I Algal Iron E Ind Observation Cludes of	(inches)	indicators (check or env one indicator is in it	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro N Dry-Se N Other  Se): No	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Adely Vegetated Corposits (B15) gen Sulfide Odor teason Water Table (explain)  Depth of water Depth to water Depth to sat. (Epi Endo	Name:  soil surface):  prial Imagery (B' ncave Surface (I (C1) (w/in 12")  a (C2) (w/in 24")  r (in.)  r (in.)  Unknown	7) N N N N N N N N N N N N N N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhize Presence of (pos. a,a a Salt Deposi Stunted or S Geomorphic Shallow Aqt (w/in 24", c Microtopogr FAC Neutra (# OBL+FA	ators (at least and Leaves (B: atterns (B10) ospheres on L f Reduced Iron or soil color ch ts (C5) Stressed Plant c Position (D2) an perch H2O aphic Relief (I I Test (D5) CW dominants	t 2 are required) 9) Living Roots (C3) (with an (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL domina
DROL  DROL  etland  imary li  Satur  Wate  Algal  Iron E  etlard  orface Water Tab  turation  cludes of	(inches)	mdicators (check or env one indicator is i) (A2) (w/in 12") //in 12") (B4)  from ground surface? Yes Yes Seepin Yes e)	Sufficient)  N Surfact N Inunda N Spars N Mari E N Hydro N Dry-Se N Other  Se): No	Soil Map Unit  Ily, measure from the Soil Cracks (Beation Visible on Adely Vegetated Corposits (B15) gen Sulfide Odor teason Water Table (explain)  Depth of water Depth to water Depth to sat. (Epi Endo	Name:  soil surface):  prial Imagery (B' ncave Surface (I (C1) (w/in 12")  a (C2) (w/in 24")  r (in.)  r (in.)  Unknown	7) N N N N N N N N N N N N N N N N N N N	ondary Indic Water-Stain Drainage Pa Oxid'd Rhize Presence of (pos. a,a a Salt Deposi Stunted or S Geomorphic Shallow Aqt (w/in 24", c Microtopogr FAC Neutra (# OBL+FA	ators (at least and Leaves (B: atterns (B10) ospheres on L f Reduced Iron or soil color ch ts (C5) Stressed Plant c Position (D2) an perch H2O aphic Relief (I I Test (D5) CW dominants	t 2 are required) 9) Living Roots (C3) (with an (C4) nange w/in 12") ts (D1) 0 w/in 12") D4) (caused by water) > # FACU+UPL domina





Site 152: Soil, July 21, 2017



Site 152: Soil, July 21, 2017





Site 152: Vegetation, looking north on July 21, 2017



Site 152: Vegetation, looking south on July 21, 2017

Project: PAMBL VMS Borough/City: JNU Haines	Date: 7.21.2017
Applicant/Owner: CONSTRANTINE	Sampling Point #: 154
A = "	IDR Alaska, Ing.
Lat. (dec.*) 59. 42197 Long. 936.24547 ± 'NAD 83 Recorded or	
Subregion (circle one): (SE Southcentral Western Aleutian Interior Northern Landfor	
Local relief: Shape across slope: linear / concave Shape up/downslope: linear / concave	
	Veg Type (Viereck Level 4 or other):
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: V No:	
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$ significantly disturbed? Are "Normal Circu	
Are Vegetation , Soil , or Hydrology  naturally problematic? If needed, explain a	
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes V	
Hydric Soil Present? Yes No V Is the sampled are within a wetland?	
Wetland Hydrology Present? Yes No V	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % car	Dominance Test worksheet:
Tree Stratum (dbh≥ 3")	
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.  1. Pices order 10 Y FRCM 5.	Number of Dominant Species That are OBL, FACW, or FAC:  (A)
1. Picen ortich 10 Y FACU 5.  2. Salix bar 20 Y FAC 8.	
3. 7.	Total Number of Dominant Species Across All Strata: 7 (B)
4 8	(b)
Total Tree Cover: 30	Percent of Dominant Species That are OBL, FACW, or FAC: 96 % (A/B)
	That are OBL, FACW, or FAC: 96 /o (A/B) Prevalence Index worksheet:
50% of total cover:	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	
1. Salie barolande 60 Y FAC 7.	OBL species X1=
2611 0 - 8	FACW species 35 X2= 70
3. Covinus Stol 20 Y FAC 9.	FAC species 124 X3= 372
4 Same rac 8 PACHO.	FACU species 48 X4= 192
	UPL + NL species (T) X5= - (T)
6. Rasa goi T NL 12.	Column Totals: 207 (A) 634 (B)
Total Sapling/Shrub Cover: 93	
50% of total cover: 46.5 20% of total cover: 19.6	Prevalence Index = B/A = 3.06
Herb Stratum	10 March 201 Mar
Abs. Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.  1. Atmy files 7 FAC 12.4m En and \$5 FACU	
1. Athy filter 7 FAC 12 total En ang 25 FALU 2. Egin an 15 Y FAC 13. V/4 dio 2 TACY	Hydrophytic Vegetation Indicators:
3. Strept MAD 7 FACULLA HORAC Lan T FACUL	Y Dominance Test is>50%
4. Circ ace alo 15 Y FACW 15. ROSA F	N Prevalence Index is ≤3.0
5. Angeles sen 5 FACH 16.	✓ Morphological Adaptations¹ (Provide supporting
6. Osmo Ohil 3 Pacu 17.	data in Remarks or on a separate sheet)
7. Gymo dry 8 FALU 18.	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
8. Wala 90. 3 19	
9. Figur pra 15 Y PALW20.	1
10. Grum Mac T PAC 21. 11. CAI CAN 2 TAC 22.	Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
	p. seem annual closer pool of providing and
Total Herb Cover: 97	
50% of total cover: 43.5 20% of total cover: 17.4	Hydrophytic Vegetation Yes No
Circular 1/10-ac plot vor other plot dimension: % of bare ground:	Present?
% Cover of Wetland Bryophytes% Total Cover of Bryophytes% (where applicable)	A Second
Remarks:	

Profile Description: (Describe to the depth need	ad to document the indicator	or contino	the shee	nce of indicat	ore)	Sampling Point #: 154	
Depth HorizonSoil Matrix		nie abse	IICO OI IIIGICAL	α,α dip.	011		
(in.) (opt.) Color (moist) %		Redox Features				Remarks	
	Color (moist) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	neg)	(or use comment number)	
0-20 B 10YR2/2	no ralet	_		SIL	ncg		
and the vertical section of			_		_		
			-				
		-	_				
Type: C = Concentration, D = Depletion, RM = Re	aduced Metrix CS=Coated S	and Grain	21 ocatio	n: DI = Borr	Lining PC	= Pool Channel M = Met	
lydric Soil Indicators (check ones that apply, m						- Noot Chambel, W - Wall	
Standard Indicators:	Indicators for Proble				)i		
N Histosol or Histel (A1) (≥16"organic surface,	.1	-30			ne indicator	of hydrophytic vegetation,	
sat'd during wet period of growing season)	N Alaska Color Chi	ange <sup>4</sup> (TA	4)			dicator of wetland	
M Histic Epipedon (A2) (8-16" organics, sat'd,	✓ Alaska Alpine Sv	vales (TA5	6)			i an appropriate landscape se present uniess disturbe	
underlain by mineral soll with chroma ≤2)  N Hydrogen Sulfide (A4) (within 12*of ground				OF	problematic		
surface; @* in this pit	N Alaska Redox wi	th 2.5Y Hu	⁴G	Give details of color change in Remarks			
Thick Dark Surface (A12)	_N_ Alaska Gleyed w	ithout Hue	5Y or Redder				
	/ Underlying La	yer					
AI	Other (e.g., see p.						
Alaska Redox (A14)	Supplement; exp	iain in Kem	erks)				
N Alaska Gleyed Pores (A15)	D		-	-			
	<del></del>	D		data Call Duc	40	Van N. 1/	
Type: hone	Soil Map Unit Name:	<u> </u>	Нус	dric Soll Pres	sent?	Yes No No	
Depth (inches)	<del></del>	υ <u></u>	Нус	dric Soll Pres	sent?	Yes No No	
Type: hone Depth (inches)————————————————————————————————————	<del></del>	<u> </u>	Нус	dric Soll Pres	sent?	Yes No V	
Type: hone Depth (inches)————————————————————————————————————	<del></del>	D	Нус	dric Soll Pres	sent?	Yes No	
Type: hone Depth (inches)——— Comments:	<del></del>		Нус	dric Soll Pres	sent?	Yes No	
Type: hone Depth (inches)—— Comments:  No relex  (DROLOGY	Soil Map Unit Name:						
Type:hone Depth (inches)  comments:	Soil Map Unit Name:		Seco	andary Indical	ors (at least	2 are required)	
Type:hone Depth (inches)  comments: horcer  DROLOGY  /etland Hydrology Indicators (check ones that a rimary indicators (any one indicator is sufficient)	Soil Map Unit Name:		Seco	endary Indical	ors (at least	2 are required)	
Type:	Soil Map Unit Name:  pply, measure from soil surface Soil Cracks (B6)	rface):	Seco	endary Indical Water-Staine Drainage Pati	ors (at least d Leaves (B erns (B10)	2 are required) 9)	
Type:	pply, measure from soil surface Soil Cracks (B6)	face): gery (B7)	Seco	ondary Indical Water-Stained Drainage Pati Oxid'd Rhizos Presence of F	ors (at least d Leaves (B lems (B10) pheres on L Reduced Irol	2 are required) 9) iving Roots (C3) (within 12'n (C4)	
Type:	pply, measure from soil surface Soil Cracks (B6) adation Visible on Aerial Imag	face): gery (B7)	Second No.	ondary Indicat Water-Stainer Drainage Patr Oxid'd Rhizos Presence of F (pos. a,a or	ors (at least d Leaves (B lems (B10) spheres on L Reduced Iroi soil color ch	2 are required) 9) .iving Roots (C3) (within 12'	
Type:	pply, measure from soil surface Soil Cracks (B6) adation Visible on Aerial Imaginsely Vegetated Concave Surfaces (B15)	rface): gery (B7) urface (B8)	Second No.	ondary Indical Water-Staine Drainage Pati Oxid'd Rhizos Presence of F (pos. a,a or Salt Deposits	ors (at least d Leaves (B dems (B10) spheres on L Reduced Iroi soll color ch (C5)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12")	
Type:	Soil Map Unit Name:  pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (Wirigen Sulfide Odor (C1) (Wi	rface): gery (B7) urface (B8) n 12")	Second No.	ondary Indical Water-Stainer Drainage Patr Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or St	ors (at least d Leaves (B erns (B10) epheres on L Reduced Irol soil color ch (C5) essed Plant	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12")	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (w	rface): gery (B7) urface (B8) n 12")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str	ors (at least d Leaves (B terns (B10) spheres on L Reduced Iron soil color ch (C5) ressed Plant Position (D2)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12")	
Type:	Soil Map Unit Name:  pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (Wirigen Sulfide Odor (C1) (Wi	rface): gery (B7) urface (B8) n 12")	Second No.	ondary Indical Water-Stainer Drainage Patr Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or St	ors (at least d Leaves (B erns (B10) epheres on L Reduced Iron soil color ch (C5) ressed Plant Position (D2) and (D3)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") Is (D1)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (w	rface): gery (B7) urface (B8) n 12")	Second No.	endary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or St Geomorphic I Shallow Aquit (win 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soil color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I	2 are required) 9)  Living Roots (C3) (within 12* n (C4) nange w/in 12*) Is (D1)	
Depth (inches)  Depth (inches)	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (w	rface): gery (B7) urface (B8) n 12")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soli color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5)	2 are required) 9)  Living Roots (C3) (within 12'n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (w	rface): gery (B7) urface (B8) n 12")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soli color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5)	2 are required) 9) Living Roots (C3) (within 12'n (C4) nange w/in 12") bs (D1) 0 w/in 12")	
Type:	Soil Map Unit Name:  pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imagarsely Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (wear (explain)	rface): gery (B7) urface (B8) n 12") u/in 24")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soli color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5)	2 are required) 9)  Living Roots (C3) (within 12'n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginately Vegetated Concave Surfaces Sulfide Odor (C1) (w/in-Season Water Table (C2) (wer (explain)	gery (B7) urface (B8) n 12") u/in 24")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soli color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5)	2 are required) 9)  Living Roots (C3) (within 12'n (C4) nange w/in 12") bs (D1) 0 w/in 12") D4) (caused by water)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (wer (explain)  Depth of water (in.)	rface): gery (B7) urface (B8) n 12") u/in 24")	Second No.	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soli color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5)	2 are required) 9)  Living Roots (C3) (within 12* n (C4) nange w/in 12*) bs (D1) 0 w/in 12*) 0 w/in 12*) > # FACU+UPL dominants)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imagarsely Vegetated Concave Surface Sulfide Odor (C1) (win Season Water Table (C2) (war (explain)  Depth of water (in.)  Depth to water (in.)	rface): gery (B7) urface (B8) n 12") u/in 24")	Second And And And And And And And And And A	endary Indicat Water-Staine Drainage Pate Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Sta Geomorphic I Shallow Aquit (win 24*, car Microtopogra FAC Neutral (# OBL+FAC)	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soil color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5) V dominants	iving Roots (C3) (within 12'n (C4) nange w/in 12") bs (D1) ) w/in 12") D4) (caused by water) > # FACU+UPL dominants)	
Type:	pply, measure from soil surface Soil Cracks (B6) Indation Visible on Aerial Imaginesity Vegetated Concave Surface Sulfide Odor (C1) (w/in-Season Water Table (C2) (wer (explain)  Depth of water (in.)	gery (B7) urface (B8) n 12") u/in 24")	Second And And And And And And And And And A	ondary Indicat Water-Staine Drainage Pat Oxid'd Rhizos Presence of F (pos. α,α or Salt Deposits Stunted or Str Geomorphic I Shallow Aquit (w/in 24*, car Microtopogra	ors (at least d Leaves (B terns (B10)) spheres on L Reduced Iron soil color ch (C5) ressed Plant Position (D2) and (D3) a perch H2O ohic Relief (I Fest (D5) V dominants	iving Roots (C3) (within 12" n (C4) nange w/in 12") bs (D1) ) w/in 12") D4) (caused by water) > # FACU+UPL dominants)	





Site 154: Soil, July 21, 2017



Site 154: Soil, July 21, 2017





Site 154: Vegetation, looking north on July 21, 2017



Site 154: Vegetation, looking east on July 21, 2017

Project PALMER VMS Borough/City: JNU Hains	Date: 7.21.20/7
Applicant/Owner: Constantie	Sampling Point #: 156
Investigator(s): Dong jewell; earn cunny ham Firm: H	IDR Alaska, Inc.
Lat. (dec.*) 59. 42150 Long. 136. 24530 ± NAD 83 Recorded of	
Subregion (circle one) SE Southcentral Western Aleutian Interior Northern Landfo	
Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave	
Photo nos./descriptions: 575/ 74 So/L; 577-580 NESW Camera #: MQS	4.0
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: V	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circu	
Are Vegetation $\sqrt{\ }$ , Soil $\sqrt{\ }$ , or Hydrology $\sqrt{\ }$ naturally problematic? If needed, explain	
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No No	
Hydric Soil Present?  Yes No Vithin a wetland?	
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % car	n total >100%. Use 2012 Indicator status.
	Dominance Test worksheet:
Tree Stratum (dbh≥ 3") Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species
1 5	That are OBL, FACW, or FAC: (A)
2 6	Total Number of Dominant
3 7	Species Across All Strata: 2 (B)
4 8	Percent of Dominant Species
Total Tree Cover:	That are OBL, FACW, or FAC: (A/B)
50% of total cover: 20% of total cover:	Prevalence Index worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	OBL species X1=
1	FACW species 30 X2= 60
2 8	FAC species 8 x3= 24
4	FACU species 145 X4= 580
5 11	UPL + NL species Ø X5= Ø
612	Column Totals: 183 (A) 664 (B)
Total Sapling/Shrub Cover:	
50% of total cover:	Prevalence Index = B/A = 3, 63
Herb Stratum	
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
1. Epi ang 60 Y PACH 12 Corex Sp. 5	Hydrophytic Vegetation Indicators:
2. Her lan 20 tacul 13. Calcan 5 FAC 3. Dolo glan 30 FACW 14. a rays see 9 © 5	N Dominance Test is>50%
4. That occ 10 FACU 15. gras sa @ 3 -	N Prevalence Index is ≤3.0
5. Geni an T FAC 16.	✓ Morphological Adaptations¹ (Provide supporting)
6. Flymus ala 40 Y FALM17.	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
7. Urt. dio 15 tacu18.	Problematic Hydrophytic Vegetation¹ (Explain)
8. Genm mac 3	
9. Ang gen + FACW 20.	
10. Triental euro T PALU21.	indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
	bo procent annual distances of problematic.
Total Herb Cover: 196	
50% of total cover: 98 20% of total cover: 39.2	Hydrophytic Vegetation Yes No
Circular 1/10-ac plot or other plot dimension: % of bare ground:	Present?
% Cover of Wetland Bryophytes % Total Cover of Bryophytes % (where applicable)	
Remarks:	

Depth Horizon Soil Matrix	B. A. E. 4	
	Redox Features	α,α dip.
(in.) (opt.) Color (molst) %	Color (moist) % Type <sup>1</sup>	Loc <sup>2</sup> Texture (pos/ Remarks neg) (or use comment number
2-7 A 10YR3/1		neg
7-20 B 2.5 Y 3/2		_ nes
V	2001	
		Carlo 24 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Type: C = Concentration, D = Depletion, RM =	= Reduced Matrix, CS=Coated Sand Grai	ins <sup>2</sup> Location: PL = Pore Lining, RC = Root Channel, M = Ma
iydric Soil Indicators (check ones that apply		
Standard Indicators:	Indicators for Problematic Hy	
N Histosol or Histel (A1) (≥16"organic surface	1	
A/ sat'd during wet period of growing season)	74 Alaska Color Change (1)	one primary indicator of wetland
N Histic Epipedon (A2) (8-16" organics, sat'd, undertain by mineral soll with chroma ≤2)	N Alaska Alpine Swales (TA	hydrology, and an appropriate landscap position must be present unless disturbe
N Hydrogen Sulfide (A4) (within 12"of ground	A/	or problematic,
surface; @" in this pit	Alaska Redox with 2.5Y	flue Give details of color change in Remarks
N Thick Dark Surface (A12)	Alaska Gleyed without Hu	ue 5Y or Redder
Al	Underlying Layer	13
Alaska Gleyed (A13)	✓ Other (e.g., see p.91 of 200)	
N Alaska Redox (A14)	Supplement; explain in Re	markis)
N Alaska Gleyed Pores (A15)		
Restrictive Layer (if present)	Drainage Class: WD	
Type: Next 6	Soil Map Unit Name:	Hydric Soil Present? Yes No V
Depth (inches)		
k*	The second secon	
/ DROLOGY // Jetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently Surface Water (A1) // High Water Table (A2) (w/in 12") // Saturation (A3) (w/in 12") // Water Marks (B1) // Sediment Deposits (B2) // Drift Deposits (B3)	at apply, measure from soil surface):	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12')  Presence of Reduced Iron (C4)  (pos. α,α or soil color change w/in 12")  Salt Deposits (C5)  N Stunted or Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  M Icrotopographic Relief (D4) (caused by water)  FAC Neutral Test (D5)
/DROLOGY /etland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently Surface Water (A1) / High Water Table (A2) (w/in 12") / Saturation (A3) (w/in 12") / Water Marks (B1) / Sediment Deposits (B2) / Drift Deposits (B3) / Algal Mat or Crust (B4) / Iron Deposits (B5)	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24")	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12')  Presence of Reduced Iron (C4)  (pos. α,α or soil color change w/in 12")  Salt Deposits (C5)  Stunted or Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  MIcrotopographic Relief (D4) (caused by water)
/ DROLOGY // Jetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently of the common of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently one indicators (any one indicator is sufficiently one indicators (any one indicator is sufficiently one indicators (any one indicators is sufficiently one indicators (any one indicators is sufficiently one indicators (any one indicators (sufficiently one indicators (any one indicators is sufficiently one indicators (any one indicators (sufficiently one indicators (any one indicators (sufficiently one indicators (any one indicators (sufficiently one indicators (any one indicator is sufficiently one indicators (any one indicator is sufficiently one indicators (any one indicator is sufficiently one indicators (any on	at apply, measure from soil surface): ent) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in.24") Other (explain)	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12)  Presence of Reduced Iron (C4)  (pos. a,a or soil color change w/in 12")  Salt Deposits (C5)  N Stunted or Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  M Icrotopographic Relief (D4) (caused by water)  FAC Neutral Test (D5)
/ Jordinators (check ones the cimary Indicators (any one indicator is sufficiently formary Indicators (any one indicators is sufficiently formatty indicators (any one indicator is sufficiently formatty indicators (any one indi	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12)  Presence of Reduced Iron (C4)  (pos. α,α or soil color change w/in 12")  Salt Deposits (C5)  Stunted or:Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  N Microtopographic Relief (D4) (caused by water)  A FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)
/ Iron Deposits (B5)  Por DROLOGY  / Vetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently and indicators)  Surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B6)  Pold Observations (in. from ground surface):  Purface Water Present?  Ves	at apply, measure from soil surface): ent) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in.24") Other (explain)  Depth of water (in.)	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12)  Presence of Reduced Iron (C4)  (pos. a,a or soit color change w/in 12")  Salt Deposits (C5)  Stunted or Stressed Plants (D1)  R Geomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  MIcrotopographic Relief (D4) (caused by water)  A FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)
/ DROLOGY // Jetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (Indicators (I	at apply, measure from soil surface): ent) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)  Depth of water (in.)  Depth to water (in.)	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12 presence of Reduced Iron (C4)  N (pos. q.q or soit color change w/in 12")  Salt Deposits (C5)  Stunted or Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  M Icrotopographic Relief (D4) (caused by water)  M FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)
/ DROLOGY / Jetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently of the cimary Indicators (any one indicator is sufficiently one indicators (any one indicators (	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)  Depth of water (in.)  Depth to water (in.)  Lith'at depth but not yet filled?:  Depth to sat. (in.)	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12 Presence of Reduced Iron (C4)  (pos. a,a or soit color change w/in 12")  Salt Deposits (C5)  N Stunted or Stressed Plants (D1)  Recomorphic Position (D2)  Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  MIcrotopographic Relief (D4) (caused by water)  A FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)
TOROLOGY  Vetland Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently surface Water (A1)  High Water Table (A2) (w/in 12")  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Verificate Water Present?  Algal Water Present?  Ves No seeping in atturation Present?  Ves No cludes capillary fringe)	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)  Depth of water (in.)  Depth to water (in.)  Depth to sat. (in.)  Epi Endo Unknown	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12 (pos. q.q or soit color change w/in 12")  Salt Deposits (C5)  Stunted or:Stressed Plants (D1)  N Geomorphic Position (D2)  N Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  Microtopographic Relief (D4) (caused by water)  N FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)  Wetland Hydrology Present? Yes No
/ Jord Logy   Indicators (check ones the cimary Indicators (any one indicator is sufficient of Surface Water (A1)   No.	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)  Depth of water (in.)  Depth to water (in.)  Depth to sat. (in.)  Epi Endo Unknown	Secondary Indicators (at least 2 are required)  N Water-Stained Leaves (B9)  N Drainage Patterns (B10)  N Oxid'd Rhizospheres on Living Roots (C3) (within 12 presence of Reduced Iron (C4)  N (pos. q,q or soit color change w/in 12")  Salt Deposits (C5)  Stunted or Stressed Plants (D1)  N Geomorphic Position (D2)  N Shallow Aquitard (D3)  (w/in 24", can perch H2O w/in 12")  Microtopographic Relief (D4) (caused by water)  N FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants)  Wetland Hydrology Present?  Yes No
/ Jordinal Hydrology Indicators (check ones the cimary Indicators (any one indicator is sufficiently formary Indicators (any one indicat	at apply, measure from soil surface): ant) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (Bi Marl Deposits (B15) Hydrogen Sulfide Odor (C1) (w/in 12") Dry-Season Water Table (C2) (w/in 24") Other (explain)  Depth of water (in.)  Depth to water (in.)  Depth to sat. (in.)  Epi Endo Unknown	Secondary Indicators (at least 2 are required)    Water-Stained Leaves (B9)   Drainage Patterns (B10)   N Oxid'd Rhizospheres on Living Roots (C3) (within 12     N Presence of Reduced Iron (C4)   (Dos. q.q or soil color change w/in 12")   Salt Deposits (C5)   Stunted or:Stressed Plants (D1)   N Geomorphic Position (D2)   N Shallow Aquitard (D3)   (w/in 24", can perch H2O w/in 12")   M Icrotopographic Relief (D4) (caused by water)   M FAC Neutral Test (D5)   (# OBL+FACW dominants > # FACU+UPL dominants)    Wetland Hydrology Present? Yes No



Site 156: Soil, July 21, 2017



Site 156: Soil, July 21, 2017



Site 156: Vegetation, looking north on July 21, 2017



Site 156: Vegetation, looking south on July 21, 2017

Project: Palner VMS	Borough	City: Thu (Hou	لظم			22.2017
pplicant/Owner: Constantie	7			- 1 1/6	Sampling F	Point #: 157
ivestigator(s): Dong puvell, en cur				R Alaska, Inc.		
	<i>1317</i> ± '					
ubregion (circle one) SE Southcentral Western	Aleutian Interio	r Northern L	.andform	: TEMESTAN	Slope (%):	Aspect:
ocal relief: Shape across slope: linear / convex / Co						
hoto nos./descriptions: 582/83 Soil ; 584-5						
re climatic / hydrologic conditions on the site typica	I for this time of yea	r? Yes: V	o: l	lf no, explain.	/	HGM type: <u>ル</u> /
re Vegetation <u>N</u> , Soil <u>N</u> , or Hydrology <u>N</u> si					Yes V No _	
re Vegetation <u>N</u> , Soil <u>N</u> , or Hydrology <u>N</u> na	aturally problematic?	If needed, ex	kplain an	swers here.		
UMMARY OF FINDINGS						
Hydrophytic Vegetation Present? Yes		Is the sample	ed area			
Hydric Soil Present? Yes	No	within a wet		Yes N	lo <u>X</u> ol	
Wetland Hydrology Present? Yes	No V			Remarks (e.g.,	marginal?):	
EGETATION (Use scientific names.) Estimate at	solute % cover (not	relative cover).	% can to	otal >100%. Use	2012 indicator	status.
Maria de la dissersa de la companya		L		Dominance Test		ni ni
<u>Tree Stratum</u> (dbh≥ 3") Species Cov.% Dom? Ind. Spe	cies Cov	.% Dom? In	nd.	Number of Domin	ant Species	0
1				That are OBL, FA		3 .
2 6				Total Number of I	Dominant	
3 7			:	Species Across A	III Strata:	7
4 8			— I,	Percent of Domin	ant Spacias	- Burna
Total Tree Cover:	-0-			That are OBL, FA		43% (N
50% of total cover:	20% of total cove	r:	1	Prevalence Inde	x worksheet:	
Sapling/Shrub Stratum (woody plants < 3" dbh)			T	Total % C	Cover of:	Multiply by:
Abs.Cov.% Dom? Ind.		v.% Dom? I	Ind.	OBL species	_	X1=
			-0.0	FACW species	30	X2= 60
				FAC species _	58	X3= 174
				FACU species _		X4= 22.4
				UPL + NL species		X5= 250
6 12						708 (E
				Column Totals:	(94 (A)	(E
Total Sapling/Shrub Cover:		r: 5				011
50% of total cover: (2, 5	20% of total cove	er:	-	Prevalence In	idex = B/A =	3.65
Herb Stratum Abs.Cov.% Dom? Ind.	Abs. Co.	/.% Dom? I	Ind.			
	4 fil - forms 4		EAC.			
2. Sax Inalli & FACW13. Ser	triange 9		FAC W	Hydrophytic Veg	etation indicat	ors:
	Vir Tilbrare -		FAC .		e Test is>50%	
			ACV .	N Prevalence	e Index is ≤3.0	
5. Petantes frig FACW 16. Dr			FAC .			(Provide supporti
6. Equi arv 5 FAC U 17. Ca 7. Vrt dio 15 Y FAC U 18. Am			<u> </u>	data in R	lemarks or on a	separate sheet)
8. Stellana cala 2 FRW 19.	13 - 3 poet 0		_  .	Problemat	ic Hydrophytic V	egetation1 (Explain
9. Tellima aread 8 FAC. U 20.		and the same of				
10. Sanguaro Can 10 FACW 21.				Indicators of hyd	Iric soil and wet	and hydrology mus
11.05m chil 3 FK. U 22.				be present unless		
Total Herb Cover:	171		mail:			
50% of total cover: 85.5	20% of total cove	77.2	2.17	Hydrophytic		./
Circular 1/10-ac plot or other plot dimension:		are ground: 5	-	Vegetation	Yes	No_V
	Total Cover of Bryo	phytes (pt)	_%	Present?		

SOIL							the de-			Sampling Point #: 157			
Profile D	Description:	(Describe to the de	oth needed t	o document the	indicator	or confirm	the abse	ence of indicator	rs)				
Depth	Horizon	Soil Matrix		Redox Features					a,a dip.				
(in.)	(opt.)	Color (moist)	%	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc2	Texture	(pos/ neg)	Remarks (or use comment number)			
0-2	00						-		_				
2-4	0e			-	_								
4-21	B	5Y2.5/1	_ 2	57R5/6	45			Sal	neg	15% gravels			
				11.61	_		_						
-	- ×				_								
					. —				_				
					_		_		_				
					_								
					_					= Root Channel, M = Matrix			
		ors (check ones that	apply, meas										
4	d Indicators	*		Indicators f	or Probl	ematic Hy	dric Soil:	_					
M His		tel (A1) (≥16"organic set period of growing set		_ <b>N</b> Alaska	Color Cl	nange <sup>4</sup> (TA	4)			of hydrophytic vegetation, dicator of wetland			
N His		n (A2) (8-16" organics		N Alaska	Alpino S	hualas (TA)	E/	hyd	rology, and	l an appropriate landscape			
	undertain by	mineral soll with chroma	(≤2)		Alpine	wales (IA	3)		ition must I roblematic	pe present unless disturbed			
Hy	drogen Sulfi surface: @	de (A4) (within 12"of p	pround	_ ✓ Alaska	Redox v	vith 2.5Y H	ue			f color change in Remarks.			
1111	ick Dark Sur			N Alaska	Gleyed	without Hu	e 5Y or R	ledder					
494	ICK DAIK SUI	iace (A12)		Und	erlying L	ayer							
-	aska Gleyed					o.91 of 2007							
THE RESERVE OF THE PARTY NAMED IN	aska Redox			Supp	lement; ex	plain in Rem	narks)						
		Pores (A15)				_	-						
	ve Layer (if إ			Drainage Cla		<u> </u>	<b>—</b>			/			
Type:		ne		Soil Map Un	it Name:		Hydric Soil Present? Yes No						
Depth							_		100				
Commer 1.	nts:												
2.								1749		5.00			
3.								190	(800)/				
HYDROL								1 1 2 2					
(740)		Indicators (check o		ly, measure tro	m soil s	urtace):		ondary Indicato Water-Stained		2 are required)			
	indicators face Water (	(any one indicator is		ce Soil Cracks (F	26)			Drainage Patte					
The second secon		le (A2) (w/in 12")	_	ation Visible on		anery (B7)				Living Roots (C3) (within 12°)			
TOTAL STREET	uration (A3)		. 1	sely Vegetated C				Presence of Re					
					oncave	ouriace (bo	" <del>"</del>	(pos. a,a or s	soil color cl	hange w/in 12")			
	ter Marks (B liment Depo:		-	Deposits (B15) ogen Sulfide Odo	- (04) (		N	Salt Deposits ( Stunted or Stre	100	4- (D4)			
				and the second		nn (2)		Stunted or Stre					
A Die		121	14 DIA-9	ennes Meter To	Ma (C2)	hadin 24"		Geomembie P					
N Drift	Series I		1	eason Water Ta	ble (C2)	(w/in 24")	N	Geomorphic P		)			
1	al Mat or Cru		Other	eason Water Ta (explain)	ble (C2)	(w/in 24")	N	Geomorphic Postallow Aquita (w/in 24", can	rd (D3)				
Alga	Series I	ıst (B4)	<u>✓</u> Other		ble (C2)	(w/in 24")	7 7	Shallow Aquita (w/in 24", can MIcrotopograp	ird (D3) perch H20 hic Relief (				
Alga	al Mat or Cru	ıst (B4)	Other		ble (C2)	(w/in 24")	7 7	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5)	) w/in 12") D4) (caused by water)			
Alga N Iron	al Mat or Cru Deposits (B	ist (B4)			ble (C2)	(w/in 24")	7 7	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5)	) w/in 12")			
Alga N Iron	al Mat or Cru Deposits (B	ist (B4)		(explain)	2		7 7	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5)	) w/in 12") D4) (caused by water)			
Alga N Iron Field Ob Surface	al Mat or Cru Deposits (B	ist (B4) 55) in. from ground surfa ent? Yes	ce): /	(explain)  Depth of wa	iter (in.)		7 7	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5)	) w/in 12") D4) (caused by water)			
Alga N Iron Field Ob Surface	al Mat or Cru Deposits (B Deservations ( Water Prese	in. from ground surfaent? Yes	ce): No / No /	Depth of wa	iter (in.) _		7 7	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5)	) w/in 12") D4) (caused by water)			
N Iron Field Ob Surface Water T	Deposits (B Deposits (B Deposi	in. from ground surfa ent? Yes ? Yes Seepi	ce): No / No /	Depth of water depth but not yet	iter (in.) _ iter (in.) _ et filled?:		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Shallow Aquita (w/in 24", can MIcrotopograp FAC Neutral T (# OBL+FACW	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			
N Iron Field Ob Surface Water To	Deposits (Boservations (Water Present)	in. from ground surfaent? Yes	ce): No / No /	Depth of wa	iter (in.) _ iter (in.) _ et filled?: t. (in.)		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			
N Iron Field Ob Surface Water To Saturatio (include:	Deposits (B Deposits (B Deposi	in. from ground surfaent? Yes	ce): No / No / ng in at that	Depth of wa Depth to wa Depth to to ye Depth to sai Epi Endo	eter (in.) _ eter (in.) _ et filled?: t. (in.) _ Unkno		No N	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			
N Iron Field Ob Surface Water To Saturatio (include: Describe	Deposits (B Deposits (B Deposi	in. from ground surfaent? Yes Yes Yes Yes	ce): No / No / ng in at that	Depth of wa Depth to wa Depth to to ye Depth to sai Epi Endo	eter (in.) _ eter (in.) _ et filled?: t. (in.) _ Unkno		No N	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			
N Iron Field Ob Surface Water To Saturatio (include:	Deposits (B Deposits (B Deposi	in. from ground surfaent? Yes Yes Yes Yes	ce): No / No / ng in at that	Depth of wa Depth to wa Depth to to ye Depth to sai Epi Endo	eter (in.) _ eter (in.) _ et filled?: t. (in.) _ Unkno		No N	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			
N Iron Field Ob Surface Water To Saturatio (include: Describe	Deposits (B Deposits (B Deposi	in. from ground surfaent? Yes Yes Yes Yes	ce): No / No / ng in at that	Depth of wa Depth to wa Depth to to ye Depth to sai Epi Endo	eter (in.) _ eter (in.) _ et filled?: t. (in.) _ Unkno		No N	Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T (# OBL+FACW	ord (D3) perch H20 hic Relief ( est (D5) / dominants	) w/in 12") D4) (caused by water) > # FACU+UPL dominants)			





Site 157: Soil, July 21, 2017



Site 157: Soil, July 21, 2017





Site 157: Vegetation, looking north on July 21, 2017



Site 157: Vegetation, looking west on July 21, 2017

## WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Palmer Borough/City: JNU . Halm	Date: 7.22.2017
Applicant/Owner_Constantie	Sampling Point #: 181
	DR Alaska, Inc.
Lat. (dec.*) 59.42246 Long. 136.23981 ± ' NAD 83 Recorded or	
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landfor	
_ocal relief: Shape across slope: linear / convex / concave Shape up/downstope: linear / co	
Photo nos./descriptions: 765/66 SOIL; 7-67-770 NESW Camera # MOS	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No:	
Are Vegetation , , Soil _ , or Hydrology _ N significantly disturbed? Are "Normal Circu	
Are Vegetation , Soil , or Hydrology , naturally problematic? If needed, explain	
BUMMARY OF FINDINGS	and the state of t
Hydrophytic Vegetation Present? Yes No No	
Is the sampled are	
	Remarks (e.g., marginal?):
/EGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % car	n total >100%. Use 2012 indicator status.  Dominance Test worksheet:
Tree Stratum (dbh≥ 3")	Dominging lest workshear
Species Cov.% Dom? Ind. Species Cov.% Dom? Ind.	Number of Dominant Species That are OBL, FACW, or FAC:  (A)
1. Pieco Sith \$5 Y FALLY 5.	
2. Pired glance 10 Y Fred 6.	Total Number of Dominant Species Across All Strata:
3 7 8	Species Across All Strata:
Total Tree Cover: 35	Percent of Dominant Species That are OBL FACW or FAC:
	That are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet:
50% of total cover: 17.5 20% of total cover: +	
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs. Cov. % Dom? Ind. Abs. Cov. % Dom? Ind.  1. Vihura edule 7 PACM 7. Rosa aci 5 BACM	OBL species X1=
2. Rosa mthma 07 FALM 8. Sheerded Can 3 FACH	FACW species 3 X2= 6
3. Salie bar 25 Y. FAC 9. Colis	FAC species 142 X3= 426
4. Cornus can \$5 FAM 10. Crost directors + -	FACU species A4 X4= 394
5. Rub arc 5 BC11. Ame als 7 UPL	UPL + NL species 9 X5= 45
6(ornus stol 10 Y pac 12 Salix aga 15 Y FAC	Column Totals: 250 (A) 861 (B)
Total Sapling/Shrub Cover: 89	
/ 50% of total cover: 17.8	Prevalence Index = B/A = 3, 4
Herb Stratum	
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
FAMI ark 80 Y. FAC 12 VIOLA) SP 2	Hydrophytic Vegetation Indicators:
2 Paroladas 7 RACU 13. Streets amp 3 FACU	7 Dominance Test is>50%
3. Geo / 1V 3 FACU 14. Gymnody 3 FACU 14. FACU 15. GAGGE FACU	Prevalence Index is ≤3.0
4. Treat eur T FACU 15. Sag rate 5 5. Gal triffer 2 PAC 18. Tellyma grand@ 5 FACU	Morphological Adaptations (Provide supporting
6 AT-lemitel 2 PACH 17. (al cax 2 FAC	Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
7. Tara off 3 PACM 18. Arm Cec 3 FACY	
8. Eni a 19 3 FACM 19.	Problematic Hydrophytic Vegetation¹ (Explain)
9. Unhaca tor 2 FACM 20.	
10. Plat didieta 3 PACW 21.	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
11. Tracella tri 3 FAL 22	be present unless disturbed or problematic.
Total Herb Cover: 126	
50% of total cover: 43 20% of total cover: 25.2	Hydrophytic
Circular 1/10-ac plot or other plot dimension: % of bare ground:	Vegetation Yes No
	Licaciti
% Cover of Wetland Bryophytes% Total Cover of Bryophytes% (where applicable)	

Inches   Color (moles)   %   Color (moles)   %   Color (moles)   %   Type   Loc   Texture   foest   Color (moles)   (or use comment name   Loc   Color   Loc   Loc   Color   Loc	Depth Horizon	Soil Matrix	(	Re			α,α dip.			
Color   Colo							Loc2	Texture	(pos/	
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains *Location: PL = Pore Lining, RC = Root Channel, M = M pydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted): Indicators in Indicators for Problematic Hydric Soils*:  N Histoacol or Histol (A1) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Histoacol or Histoacol (A2) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Alaska Cleyed without Huse SV or Redder Undertying Layer  N Alaska Redox (A12) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Alaska Redox (A12) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Alaska Redox (A12) (245° erganics, sat 4, undertain by mises at 64 with critons as:)  N Alaska Cleyed without Huse SV or Redder Undertain by mises at 64 with a 64 with 2.5 via 64 with 64 w	the Chick and								neg)	(or use comment number
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coaled Sand Grains *Location: PL = Pors Lining, RC = Root Channel, M = Mydric Soil Indicators: (check ones that apply, measure from top of mineral layers unless otherwise notad): tandard indicators:    History		21 E/10Y	90	MYD Alla	10	_	M DC	SiL	nee	
Type: C = Concentration, D = Depletion, RM = Reduced Metrix, CS-Coated Sand Grains *Location: PL = Pore Lining, RC = Root Channel, M = M ydric Soll Indicators (check ones that apply, measure from top of mineral layers unless otherwise notad):   Indicators (check ones that apply, measure from top of mineral layers unless otherwise notad):   Indicators:	187	323/101		10 17 11 0			11110			
Spress   C   Concentration, D   Depletion, RM   Reduced Matrix, CS   Coaled Sand Grains   Location   PL   Pore Lining, RC   Root Channel, M   M   M   M   M   M   M   M   M   M				1.00			V		_	
ydric Soll Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted): tandard Indicators:    Histoscol of Histo (A1)							_			
ydric Soll Indicators (check ones that epply, measure from top of mineral layers unless otherwise noted): tandard Indicators:    Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Initial (A1) (c16* organic surface, said during with period of growing associal)   Histoso of Surface (A12)							_			
ydric Soll Indicators (check ones that apply, measure from top of mineral tayers unless otherwise noted): tandard Indicators:  Indicators for Problematic Hydric Soils*:  Note of the Indicator of Problematic Hydric Soils*:  Note of Indicator Indicator Indicator of Problematic Hydric Soils*:  Note of Indicator In										
ydric Soll Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted): tandard Indicators:    Histoscol of Histo (A1)					_			- Contract of the Contract of		- I - n-
tandard Indicators:    Historic of Historic (A1) (c1d*organic surface, serid during wet period of growing season)	Type: C = Concentration	on, D = Depletion	, RM = R	educed Matrix, CS=	Coated S	Sand Grain	ns <sup>2</sup> Locatio	n: PL = Pore	Lining, RC	= Root Channel, M = Ma
Histosol or Histel (A1) (2-16*organic surface, Set during well period of growing season)   Halle Epipedio (A2) (8-16* organics, art.d., underfain by miseral self with chrome \$2)   M. Alaska Alpine Swales (TA5)   M. Hydrogen Sulfide (A4) (with 12*0 ground surface, @	ydric Soll Indicators	(check ones that	t apply, m	easure from top of	mineral	layers ui	nless othe	rwise noted)		100
Secondary Indicators (or evelland eurlace)   Secondary Indicator	tandard Indicators:			Indicators fo	r Proble	matic Hy	dric Solls	3:		
Histic Epipedon (A2) (e.16" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, underlath by mineral sol with chrome s2)   Minth 12" organica, saird, sair	Histosol or Histel (	A1) (≥16*organic	surface,	V Alaska	Color Ch	ianne <sup>4</sup> (TA	14)	3Or	ne indicator	of hydrophytic vegetatio
Muderal hymineral soll with chrone s22 Mydrages allowin 20° ground surface; @ in this pit Mydrages sulfide (A4) (within 12° ground surface; @ in this pit M Alaska Gleyed (A13) M Alaska Gleyed (A14) M Alaska Gleyed (A15) Supplement, explain in Remarks)  Dreinage Class: PD Soil Map Unit Name:  Dreinage Class: PD D										
Alaska Redox with 2.57 Hue  Give details of color change in Remark  Thick Dark Surface (A12)  Alaska Gleyed (A13)  Alaska Gleyed (A13)  Alaska Gleyed (A14)  Direct (e.g., see p.81 of 2007 Supplement; explain in Remarks)  Alaska Gleyed Pones (A15)  Selfrictive Layer (if present)  Type:  Alaska Gleyed Pones (A15)  Selfrictive Layer (if present)  Type:  Depth (inches)  Drainage Class:  Drainage Class:  Drainage Class:  Drainage Class:  Depth (inches)  Drainage Class:  Drainage Pattams (B10)  Noted Afrizospheres on Living Roots (C3) (within 12)  Noted Classes (B9)  N	undertain by mine	eral soil with chrom	s, sarc. a ≤2)	N Alaska	Alpine S	wales (TA	.5)	pos	ition must b	
Alaska Gleyed without Hue 5Y or Redder Underlying Layer Alaska Redox (A12)  Alaska Redox (A13)  Alaska Gleyed (A13)  Alaska Gleyed Pores (A15)  Alaska Redox (A14)  Alaska Gleyed Pores (A15)  Drainage Class: PD  Soli Map Unit Name:  Drainage Class: PD  Hydric Soli Present? Yes No  Depth (Inches)  Weter-Stained Leaves (B9)  Drainage Patterns (B10)  A Condid Respondent on the Normal Staturation (A3) (w/in 12²)  Water Arable (A2) (w/in 12²)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Drop-Season Water Table (C2) (w/in 24²)  Iron Deposits (B5)  Alaska Gleyed without Hue 5Y or Redder  Underlying Layer  Drainage Patterns  Weter Stained Leaves (B9)  Nordicators (at least 2 are required)  Nordicators (at least 2 are required)  Nordicators (at least 2 are required)  Nordicators (B6)  N	N Hydrogen Sulfide (	(A4) (within 12"of	ground	N Alaska	Redox w	iib 2 5V H	lue			color change in Romes
Alaska Gleyad (A13)  Alaska Gleyad Pores (A15)  Alaska Gleyad Pores (A15)  Alaska Gleyad Pores (A15)  Alaska Gleyad Pores (A15)  Strictive Layer (if present)  Type: Non'C  Depth (inches)  Map Unit Name: Hydric Soil Present? Yes No  Map Unit Name: Hydric Soil Present? Yes No  Map Unit Name: Hydric Soil Present? Yes No  Mari Deposits (B6)  Water-Stained Leaves (B9)  Nod'd Rhizosphers on Living Roots (C3) (within 12')  Alaska Gleyad Pores (A15)  Secondary Indicators (at least 2 are required)  Water-Stained Leaves (B9)  Nod'd Rhizosphers on Living Roots (C3) (within 12')  Saturation (A3) (wiin 12')  Water Marks (B1)  Sediment Deposits (B1)  Drift Deposits (B3)  Alaska Gleyad Pores (A15)  Water Marks (B1)  Dry-Season Water Table (A2) (wiin 12')  Alaska Gleyad Present?  Ves No  Depth of water (in.)  Seeping In at that depth but not yet filled?: 10 Septh of water (in.)  Underlying Layer  Dother (e.g., see p. 91 of 2007  Supplement; explain in Remarks)  Secondary Indicators (at least 2 are required)  Water-Stained Leaves (B9)  No Oxid'd Rhizosphers on Living Roots (C3) (within 12')  Soil Concave Sturface (B8)  No Oxid'd Rhizosphers on Living Roots (C3) (within 12')  Sell Deposits (B1)  No Hydrogen Sulfide Odor (C1) (wiin 12')  Soil Concave (B8)  No Geomorphic Position (D2)  Microtopographic Relief (D4) (caused by water)  Microtopographic Relief (D4) (caused by	surface; @	n this pit		7.1					ve details of	Color change in Remar
Alaska Gleyed (A13)  Alaska Redox (A14)  Alaska Redox (A14)  Alaska Gleyed Pores (A15)  Supplement; explain in Remarks)  Drainage Class:   P	Thick Dark Surface	e (A12)					e by or Ke	ader		
Alaska Glayed Pores (A15)   Alaska Glayed	Alaska Gleyed (A1	3)					,			
Drainage Class: PD Soli Map Unit Name:    Drainage Class: PD   Soli Map Unit Name:   Hydric Soli Present?   Yes   No	Alaska Redox (A14	1)								
Type: Nonce	Alaska Gleyed Por	es (A15)								
Depth (inches) Imments:  DROLOGY Setland Hydrology Indicators (check ones that apply, measure from soil surface):  many Indicators (any one indicator is sufficient)  Surface Water (A1) N Surface Soil Cracks (B6) N Drainage Patterns (B10) N Surface Water Table (A2) (w/in 12") N Inundation Visible on Aerial Imagery (B7) Saturation (A3) (w/in 12") Seturation (A3) (w/in 12") N Mari Deposits (B15) Sediment Deposits (B2) Drift Deposits (B2) Drift Deposits (B3) N Dry-Season Water Table (C2) (w/in 12") N Sunface Odor (C1) (w/in 12") N Sundard or Stressed Plants (D1) N Stunded or Stressed Plants (D1) N Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12") M Incrotopographic Relief (D4) (caused by water) FAC Neutral Test (D5)  (# OBL+FACW dominants > # FACU+UPL dominants  Wettand Hydrology Present? Yes No Depth to water (in.) Seeping In at that depth but not yet filled?: 10 540, 540 Unknown  Wettand Hydrology Present? Yes No Depth to sat. (in.) Seeping In at that depth but not yet filled?: 10 540, 540 Unknown  Wettand Hydrology Present? Yes No Depth to sat. (in.) Seeping In at that depth but not yet filled?: 10 540, 540 Unknown  Wettand Hydrology Present? Yes No Depth to sat. (in.) In available:		•		Drainage Cla	ss: P[	7				/
DROLOGY  etland Hydrology Indicators (check ones that apply, measure from soli surface):	T 1 1			O - 21 A 4 A 1 - 11						The state of the s
etland Hydrology Indicators (check ones that apply, measure from solf surface):  imary Indicators (any one Indicator is sufficient)  Surface Water (A1)  Noundation Visible on Aerial Imagery (B7)  Mari Deposits (B15)  Sediment Deposits (B2)  Indicators (B4)  Indicators (at least 2 are required)  Nould'd Rhizospheres on Living Roots (C3) (within Maria Presence of Reduced fron (C4) (pos. a.a. or soil color change w/in 12")  Sediment Deposits (B2)  Indicator (C1) (w/in 12")  Indicator (C2) (w/in 12")  Indicator (C3) (within Maria Present (C2) (w/in 12")  Indicator (C3) (within Maria Present (C3) (w/in 12")  Indicator (C3) (w/in 12")  Nould'd Rhizospheres on Living Roots (C3) (w/in 12")  Nould Rhizospheres on Change w/in 12")  Nould Reposits (B15)  Nould Deposits (B15)  Nould Deposits (B15)  Nould Reposits (B2)  Nould Reposits (B2)  Nould Reposit (B2)  Nould				Soll Map Unit	Name:		Hyc	iric Soll Pres	ent?	Yes No V
Index of the control				Soil Map Unit	Name:	nd la	Hyd	iric Soll Pres	ent?	Yes No V
Trace Water Present? Yes No Depth of water (in.)  ater Table Present? Yes No Depth to water (in.)  Seeping In at that depth but not yet filled?: 10 Seeping  turation Present? Yes No Depth to sat. (in.)  Selution Present? Yes No Depth to sat. (in.)  Selution Present? Yes No Depth to sat. (in.)  Selution Present? Yes No No Depth to sat. (in.)  Seribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches) omments:  DROLOGY  Tetland Hydrology Indirimary Indicators (any Surface Water (A1) High Water Table (A) Saturation (A3) (w/in) Water Marks (B1) Sediment Deposits (B3)	icators (check or one indicator is 2) (w/in 12") 12")	N Sur N Inu N Spa N Ma N Hyd N Dry	apply, measure from ) rface Soil Cracks (Boundation Visible on A arsely Vegetated Co rf Deposits (B15) drogen Sulfide Odor r-Season Water Tab	n soit su 6) erial Ima ncave S (C1) (w/	igery (B7) urface (B8	Second 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ndary Indicate Vater-Stained Dxid'd Rhizos; Presence of R (pos. α,α or seatt Deposits of Stunted or Strunted or S	pors (at least I Leaves (BS ems (B10) _ pheres on L soil color ch (C5) essed Ptant osition (D2) and (D3) perch H2O shic Rellef (D5)	2 are required)  iving Roots (C3) (within 1: (C4) ange w/in 12")  \$\{\text{D1}\} \text{w/in 12"} \text{d4} \text{(caused by water)}
Seeping In at that depth but not yet filled?: 10 5aps  turation Present? Yes V No Depth to sat. (in.) 5  Cludes capillary fringe) Epi Endo Unknown  scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches) omments:  DROLOGY fetland Hydrology Indicition (A1) Surface Water (A1) High Water Table (A) Saturation (A3) (w/in Water Marks (B1) Sediment Deposits (B3) Aigal Mat or Crust (B Iron Deposits (B5)	icators (check or one indicator is 2) (w/in 12") 12") B2)	Sufficient  N Sur  N Inu  N Spa  N Mar  N Hyd  N Dry  Oth	apply, measure from ) rface Soil Cracks (Boundation Visible on A arsely Vegetated Co rf Deposits (B15) drogen Sulfide Odor r-Season Water Tab	n soit su 6) erial Ima ncave S (C1) (w/	igery (B7) urface (B8	Second 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ndary Indicate Vater-Stained Dxid'd Rhizos; Presence of R (pos. α,α or seatt Deposits of Stunted or Strunted or S	pors (at least I Leaves (BS ems (B10) _ pheres on L soil color ch (C5) essed Ptant osition (D2) and (D3) perch H2O shic Rellef (D5)	2 are required)  iving Roots (C3) (within 1: (C4) ange w/in 12")  \$\{\text{D1}\} \text{w/in 12"} \text{d4} \text{(caused by water)}
Seeping In at that depth but not yet filled?: 10 Sap 5  turation Present? Yes V No Depth to sat. (in.) 5  Cludes capillary fringe) Epi Endo Unknown  scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches)  omments:  DROLOGY  /etland Hydrology Indi rimary Indicators (any  J Surface Water (A1)  High Water Table (A)  Saturation (A3) (w/in  J Water Marks (B1)  J Sediment Deposits (B3)  J Algal Mat or Crust (B  Iron Deposits (B5)	icators (check of one indicator is 2) (w/in 12") 12") B2)	Sufficient  N Sui N Inu N Spa N Ma N Hyro N Dry Oth	apply, measure from ) fface Soil Cracks (Bi ndation Visible on A arsely Vegetated Co rl Deposits (B15) drogen Sulfide Odor r-Season Water Tab aer (explain)	n soit su 6) erial Ima ncave S (C1) (w/	igery (B7) urface (B8	Second 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ndary Indicate Vater-Stained Dxid'd Rhizos; Presence of R (pos. α,α or seatt Deposits of Stunted or Strunted or S	pors (at least I Leaves (BS ems (B10) _ pheres on L soil color ch (C5) essed Ptant osition (D2) and (D3) perch H2O shic Rellef (D5)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  \$\int(D1)\$  w/in 12")  04) (caused by water)
turation Present? Yes V No Depth to sat. (in.) 5 Wetland Hydrology Present? Yes No Cludes capillary fringe)  Epi Endo Unknown  scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches)  DROLOGY  Setland Hydrology Indicators (any  Surface Water (A1)  High Water Table (A)  Saturation (A3) (win  Water Marks (B1)  Sediment Deposits (B3)  Algal Mat or Crust (B  Iron Deposits (B5)	icators (check of one indicator is 2) (w/in 12") 12") B2) om ground surfac	Sufficient  N Sui  N Inu  N Spa  N Ma  N Hyo  Oth	apply, measure from  face Soil Cracks (Boundation Visible on A arsely Vegetated Co ri Deposits (B15) drogen Sulfide Odor r-Season Water Tab arer (explain)	n soit su 6) erial Ima ncave S (C1) (w/ le (C2) (d	ngery (B7) urface (B8 in 12") w/in 24")	Second 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ndary Indicate Vater-Stained Dxid'd Rhizos; Presence of R (pos. α,α or seatt Deposits of Stunted or Strunted or S	pors (at least I Leaves (BS ems (B10) _ pheres on L soil color ch (C5) essed Ptant osition (D2) and (D3) perch H2O shic Rellef (D5)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  \$\int(D1)\$  w/in 12")  04) (caused by water)
cludes capillary fringe) Epi (Endo) Unknown scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches)  DROLOGY  Settand Hydrology Indicators (any  Surface Water (A1)  High Water Table (A)  Saturation (A3) (win  Water Marks (B1)  Sediment Deposits (B3)  Algal Mat or Crust (B  Iron Deposits (B5)	icators (check of one indicator is 2) (w/in 12") 12") B2) 4) om ground surfac Yes Yes	N Sur N Inu N Spa N Mar N Hyd Oth	apply, measure from ) frace Soil Cracks (Boundation Visible on A arsely Vegetated Co ri Deposits (B15) drogen Sulfide Odor -Season Water Tab aer (explain)  Depth of water Depth to water	n soit su 6) erial Ima ncave S (C1) (w) le (C2) (d	gery (B7) urface (B8 in 12") w/in 24")	Second 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ndary Indicate Vater-Stained Dxid'd Rhizos; Presence of R (pos. α,α or seatt Deposits of Stunted or Strunted or S	pors (at least I Leaves (BS ems (B10) _ pheres on L soil color ch (C5) essed Ptant osition (D2) and (D3) perch H2O shic Rellef (D5)	2 are required)  iving Roots (C3) (within 1 (C4) ange w/in 12")  \$\int(D1)\$  w/in 12")  04) (caused by water)
scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches) omments:  DROLOGY fetland Hydrology Indicition (A1) Surface Water (A1) High Water Table (A) Saturation (A3) (w/in Water Marks (B1) Sediment Deposits (B3) Aigal Mat or Crust (B Iron Deposits (B5)	icators (check or one indicator is 2) (w/in 12") 12") B2) 4) om ground surfac Yes Yes Yes Seepin	Sufficient  N Sur  N Inu  N Spa  N Mar  N Hyc  N Dry  Oth  Se):  No  Ig in at th	apply, measure from ) fface Soil Cracks (Bi ndation Visible on A arsely Vegetated Co ri Deposits (B15) drogen Sulfide Odor r-Season Water Tab are (explain)  Depth of wate at depth but not yet	n soli su 6) erial Ima ncave S (C1) (w/ le (C2) (i	gery (B7) urface (B8 in 12") w/in 24")	Second V S	ndary Indicate Vater-Stained Dxid'd Rhizos Presence of R (pos. α,α or s Salt Deposits Stunted or Sta Geomorphic P Shallow Aquita (w/in 24", can Alcrotopograp FAC Neutral T (# OBL+FACV	prs (at least I Leaves (BS ems (B10) _ pheres on L educed from soil color ch (C5)' essed Plant osition (D2) and (D3) perch H2O shic Relief (I est (D5) V dominants	2 are required)  (ving Roots (C3) (within 1 (C4) ange w/in 12")  (D1)  (w/in 12")  (caused by water)  # FACU+UPL dominants
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	Depth (inches) DROLOGY etland Hydrology Indicators (any Surface Water (A1) High Water Table (A' Saturation (A3) (w/in Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Id Observations (in. fro face Water Present? ter Table Present?	icators (check or one indicator is 2) (w/in 12") 12") B2) 4) om ground surfac Yes	Sufficient  N Sur  N Inu  N Spa  N Ma  N Hyo  Oth  Oth  No  No	apply, measure from ) frace Soil Cracks (Bi ndation Visible on A arsely Vegetated Co rl Deposits (B15) drogen Sulfide Odor r-Season Water Tab aer (explain)  Depth of wate Depth to wate at depth but not yet Depth to sat. Epi Endo	n soit su 6) erial Ima ncave S (C1) (w/ le (C2) (in.) or (in.) filled?: Unknov	2	Second No. 10 No	ndary Indicate Vater-Stained Drainage Patte Dxid'd Rhizose Presence of R (pos. a,a or Salt Deposits of Stunted or Standard Standard Aquita (w/in 24", can Alcrotopograp FAC Neutral T (# OBL+FACV	prs (at least I Leaves (BS ems (B10) _ pheres on L educed from soil color ch (C5)' essed Plant osition (D2) and (D3) perch H2O shic Relief (I est (D5) V dominants	2 are required)  (ving Roots (C3) (within 1 (C4) ange w/in 12")  (D1)  (w/in 12")  (caused by water)  # FACU+UPL dominants



Site 181: Soil, July 21, 2017



Site 181: Soil, July 21, 2017





Site 181: Vegetation, looking east on July 21, 2017

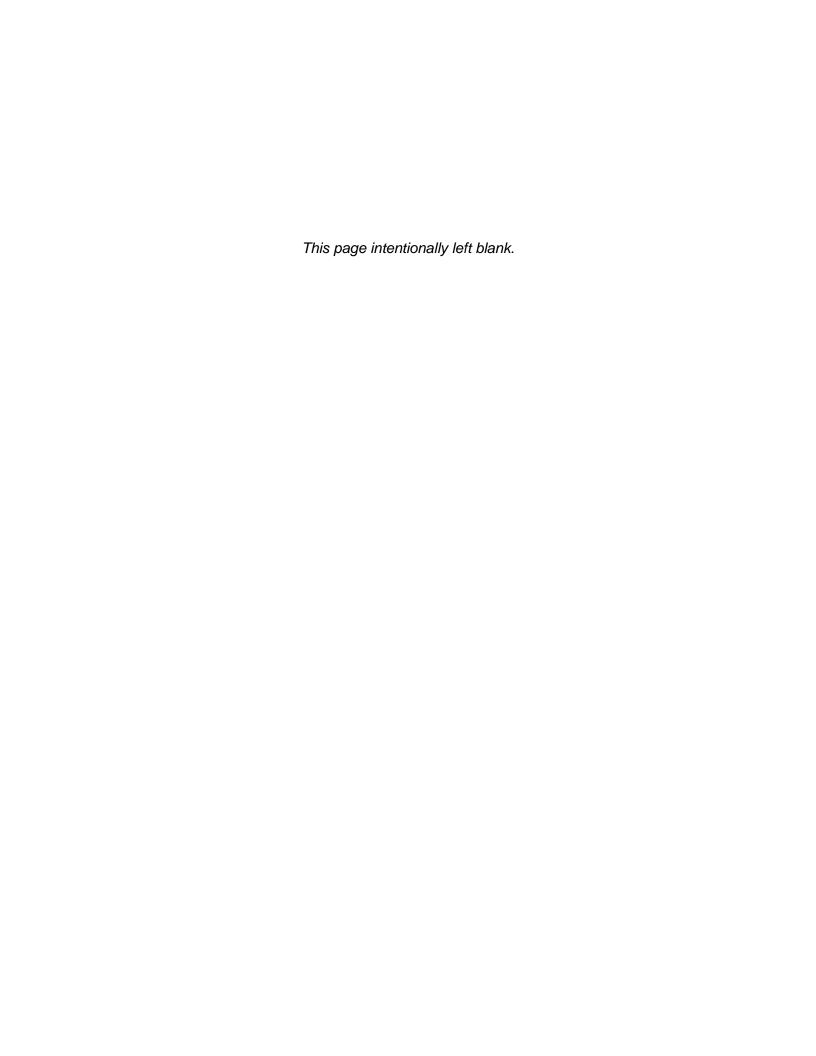


Site 181: Vegetation, looking west on July 21, 2017

## Appendix B

## Observation Points – Photographs

July 19-22, 2017





Site 81: Waterbody, looking south on July 19, 2017



Site 81: Waterbody, looking west on July 19, 2017





Site 82: Upland, looking north on July 19, 2017



Site 82: Upland, looking east on July 19, 2017





Site 83: Waterbody, looking north on July 19, 2017



Site 83: Waterbody, looking west on July 19, 2017





Site 99: Vegetation, looking east on July 19, 2017



Site 99: Vegetation, looking west on July 19, 2017





Site 109: Stream crossing, looking upstream on July 19, 2017



Site 109: Stream crossing, looking downstream on July 19, 2017



Site 110: Vegetation, looking east on July 19, 2017



Site 110: Dry swale, looking south on July 19, 2017





Site 111: Vegetation, looking north on July 19, 2017



Site 111: Seep flowing at this site on July 19, 2017





Site 112: Vegetation, looking south on July 19, 2017



Site 112: Seep at this site on July 19, 2017





Site 123: Waterbody, looking upslope on July 19, 2017



Site 123: Waterbody, looking downslope on July 19, 2017





Site 124: Waterbody on July 19, 2017



Site 124: Waterbody on July 19, 2017



Site 126: Waterbody adjacent to Site 125 looking north on July 20, 2017



Site 126: Waterbody adjacent to Site 125 looking east on July 20, 2017



Site 133: Wetland vegetation, looking west on July 20, 2017



Site 133: Inundated strip along forest edge at this site, July 20, 2017



Site 136: Looking usptream on tributary of Glacier Creek on July 21, 2017



Site 136: Looking downstream toward Glacier Creek on July 21, 2017





Site 136: Looking across stream channel, July 21, 2017



Site 136: Stream channel looking south on July 21, 2017





Site 137: Vegetation, looking north on July 21, 2017



Site 137: Vegetation, looking east on July 21, 2017





Site 138: Looking upstream on side channel of Glacier Creek tributary, July 21, 2017



Site 138: Looking downstream at tributary of Glacier Creek on July 21, 2017





Site 139: Upland vegetation, looking east on July 21, 2017



Site 139: Upland vegetation, looking west on July 21, 2017





Site 140: Upland vegetation, looking south on July 21, 2017



Site 140: Upland vegetation, looking west on July 21, 2017



Site 141: Upland vegetation; no flow or sign of flow, looking upslope on July 21, 2017



Site 141: Upland vegetation; no flow or sign of flow, looking across slope on July 21, 2017





Site 142: Stream crossing, looking upstream on July 21, 2017



Site 142: Stream crossing, looking downstream on July 21, 2017





Site 149: Upland vegetation; looking north on July 21, 2017



Site 149: Upland vegetation; looking east on July 21, 2017





Site 150: Upland vegetation; looking north on July 21, 2017



Site 150: Upland vegetation; looking south on July 21, 2017



Site 151: Recently disturbed upland; looking east on July 21, 2017



Site 151: Recently disturbed upland; looking south on July 21, 2017





Site 153: Upland, vegetation looking north on July 21, 2017



Site 153: Upland, vegetation looking east along road cut on July 21, 2017





Site 155: Looking north at dry channel on July 21, 2017



Site 155: Looking south at dry channel on July 21, 2017



Site 163: Vegetation looking north on July 21, 2017



Site 163: Vegetation looking south on July 21, 2017





Site 164: Looking upstream on July 21, 2017



Site 164: Looking downstream on July 21, 2017





Site 165: Inundated backwater area (beaver activity), looking east on July 21, 2017



Site 165: Inundated backwater area (beaver activity), looking south on July 21, 2017



Site 166: Downstream of beaver dam, looking north on July 21, 2017



Site 166: Standing on beaver dam, photographer looking west on July 21, 2017





Site 167: Stream crossing, looking upstream on July 21, 2017



Site 167: Stream crossing, looking downstream on July 21, 2017



Site 168: Backwater from beaver activity, looking east on July 21, 2017



Site 168: Backwater from beaver activity, looking south on July 21, 2017



Site 169: Small seep on July 21, 2017



Site 169: Vegetation, looking west from small seep on July 21, 2017





Site 170: Seep, looking north on July 21, 2017



Site 170: Seep, looking south on July 21, 2017





Site 171: Stream channel, looking upstream on July 21, 2017



Site 171: Stream channel, looking downstream on July 21, 2017





Site 172: Vegetation, looking north on July 21, 2017



Site 172: Ponded area, looking south on July 21, 2017





Site 173: Inundated area (beaver activity), looking north on July 21, 2017



Site 173: Inundated area (beaver activity), looking east on July 21, 2017





Site 174: Edge of inundation (beaver activity), looking east on July 21, 2017



Site 174: Inundation at this site, looking south on July 21, 2017





Site 175: Small feeder stream, looking upstream on July 21, 2017



Site 175: Looking upstream on main stream channel on July 21, 2017



Site 176: Vegetation at upland site, looking east on July 21, 2017



Site 176: Vegetation at upland site, looking west on July 21, 2017





Site 178: Vegetation, looking north on July 21, 2017



Site 178: Small stream, looking downstream on July 21, 2017





Site 179: Pond, looking north on July 21, 2017



Site 179: Looking west on July 21, 2017





Site 180: Looking upstream from Bear Creek bridge on July 21, 2017



Site 180: Looking downstream from Bear Creek bridge on July 21, 2017





Site 182: Vegetation, looking north on July 21, 2017



Site 182: Vegetation, looking east on July 21, 2017





Site 183: Vegetation, looking north on July 21, 2017



Site 183: Vegetation, looking east on July 21, 2017